JOURNAL

of the

INDIAN MEDICAL ASSOCIATION

VOLUME 30 NUMBER 9 CALCUTTA MAY 1, 1958

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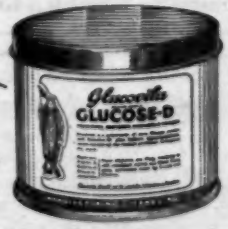

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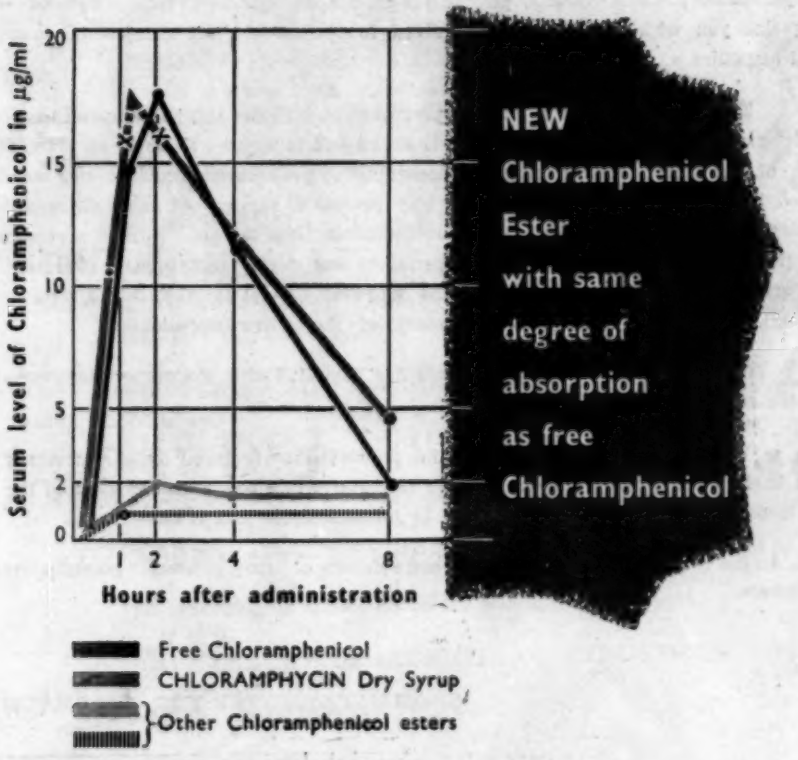

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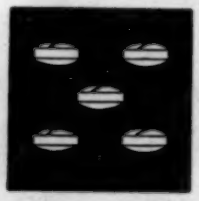

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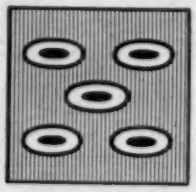

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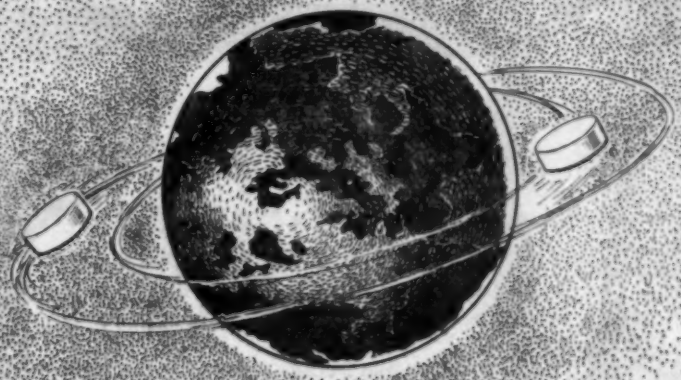

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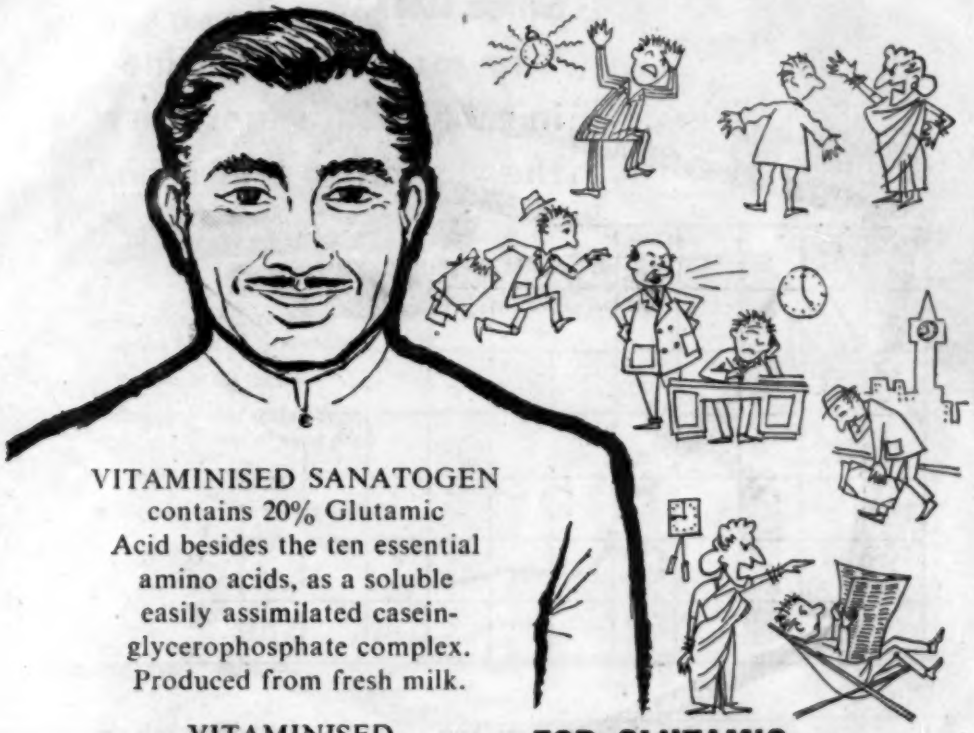

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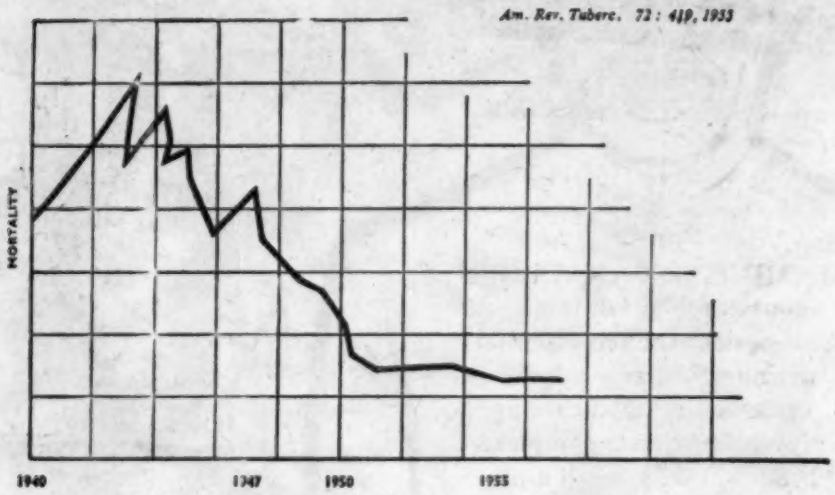

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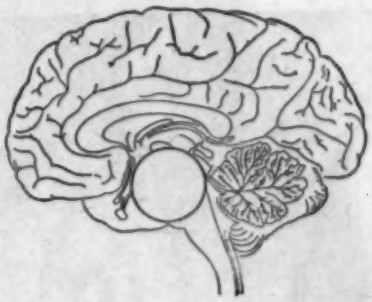

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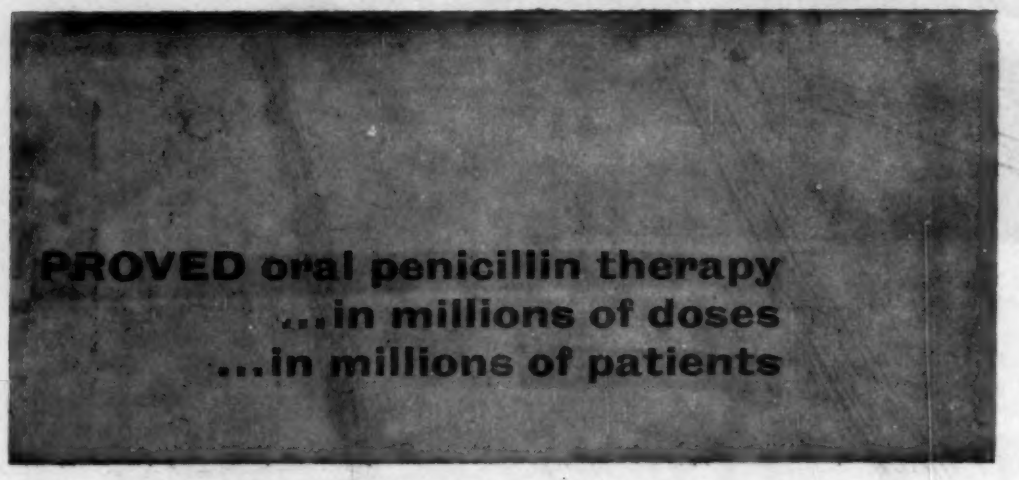

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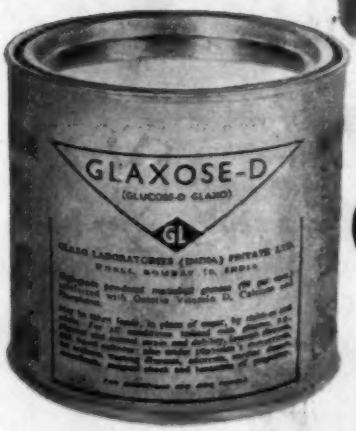

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CALCUTTA
MAY 1, 1958

ORIGINAL ARTICLES

BLOOD HISTAMINE IN PEPTIC ULCER*

K. C. BASU MALLIK, M.D. (CAL.), PH.D. (LOND.)

AND

D. K. BHATTACHARYA, M.B.B.S. (CAL.)

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The secretagogue action of histamine on the oxyntic cells of the stomach is well known since the discovery of its pharmacological effect on the gastric secretion by Popielsky (1920). Indeed many physiologists believe that the final stimulant of the oxyntic cells, whatever may be the primary stimulus (nervous or humoral), is this amine (Babkin, 1950). Soon after this discovery experimental pathologists claimed to have produced gastric ulcer in animals by single or repeated injections of histamine (McIlroy, 1927, Buchner and Molloy, 1927). But the result was often conflicting as some investigators failed to reproduce the result (Overgaard, 1931 ; Orndorf *et al*, 1935). Finally the administration of long-acting histamine by incorporating it in beeswax gave uniformly successful result (Code and Varco, 1940 ; Hay *et al*, 1942). On the basis of these experiments it has been suggested that histamine may have some role in the genesis of peptic ulcer in man and in at least one type of peptic ulcer, viz., Curling's ulcer, its importance has been proved (Rosenthal, 1937 ; Palmer, 1942). It was, therefore, thought that it would be worthwhile to determine the blood histamine level in patients suffering from peptic ulceration and to find out if there is any correlation between the basal acid secretion and the blood histamine level in these patients.

METHOD AND MATERIAL

These investigations were carried out on twenty patients of chronic peptic ulceration (gastric or duodenal) who were admitted into the different wards of Nilratan Sircar Medical College Hospital, Calcutta. The diagnosis was confirmed in each case by radiology and the blood was collected in the active stage of the disease. Thorough clinical examination, fractional test meal and full haematological investigation were undertaken in each case. Blood histamine was determined by the method described by Code and McIntire (1956) and the amine was assayed biologically on the guinea pig's ileum suspended in atropinised Tyrode's solution kept at a temperature of 34°C.

RESULT

The result of the investigations is shown in Table 1 and Fig. 1. It is evident from this table that the blood histamine level of these patients is within the normal range for we found that the normal value for healthy Indian adults vary from 1·0 to 8·0 microgram per 100 ml. (Basu Mallik and Bhattacharya, 1958). The only exception is Case no. 16 in whom we found the high value of 17·5 γ/100 ml. In view of the normal finding in the other 19 cases, we are inclined to believe that the cause of the high histamine value in this

* Paper read at the annual conference of the Indian Association of Pathologists, Lucknow, December 1957.

TABLE 1—SHOWING THE CLINICAL DIAGNOSIS, FASTING ACID CONTENT OF THE GASTRIC JUICE AND BLOOD HISTAMINE LEVEL OF THE 20 PATIENTS EXAMINED

Serial No.	Name, Age, Sex	Clinical diagnosis	Fasting acid (mEq/litre)	Blood histamine (γ/100 ml)
1	B.M., 27, M	D.U.	45	6·8
2	B.D., 30, M	D.U.	48	1·2
3	S.C., 35, M	D.U.	20	1·8
4	D.D., 36, M	D.U.	20	2·3
5	M.D., 38, M	D.U.	50	5·0
6	K.B., 28, M	D.U.	40	3·1
7	B.M., 26, M	D.U.	20	2·9
8	S.H., 35, M	D.U.	35	3·4
9	B.B., 50, M	G.U.	20	1·2
10	S.B., 30, M	D.U.	64	1·0
11	S.P., 21, M	G.U.	8	5·1
12	R.D., 40, M	D.U.	20	2·4
13	S.P., 23, M	D.U.	84	8·0
14	B.P., 38, M	D.U.	80	2·2
15	K.D., 32, M	D.U.	50	3·5
16	A.T., 24, F	D.U.	40	17·5
17	H.S., 32, M	D.U.	18	3·6
18	M.B., 17, M	D.U.	36	2·6
19	K.N., 32, M	D.U.	52	2·2
20	G.D., 55, M	D.U.	50	6·2

Average 4·1 γ/100 ml.
D.U.—Duodenal Ulcer. G.U.—Gastric Ulcer.

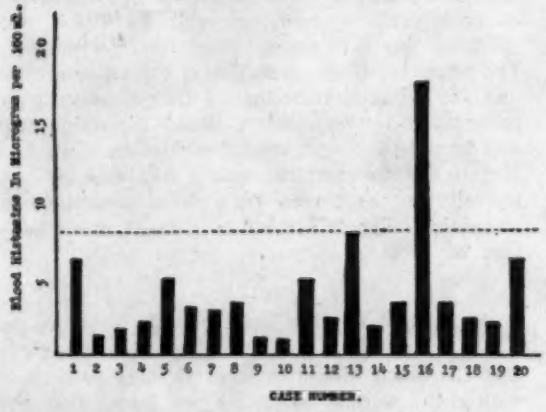

FIG. 1—SHOWING THE BLOOD HISTAMINE LEVEL OF THE 20 PATIENTS OF CHRONIC PEPTIC ULCER. THE DOTTED LINE SHOWS THE HIGHEST LIMIT OF NORMAL VALUE.

patient is to be looked for elsewhere. Unfortunately the patient left the hospital early and we could not investigate the cause of high value in this patient. Fig. 2 shows that there is no correlation between the blood histamine level and the basal acid secretion of the gastric juice.

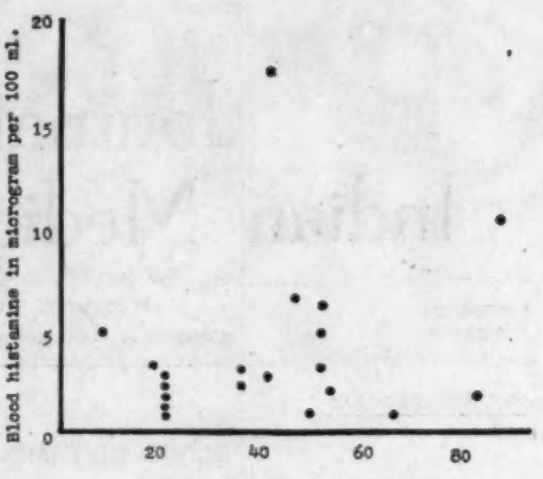

FIG. 2—SHOWING THAT THERE IS NO CORRELATION BETWEEN THE BLOOD HISTAMINE LEVEL AND THE ACID CONTENT OF THE FASTING GASTRIC JUICE.

DISCUSSION

From our investigations it is evident that there is no rise in the blood histamine level in the patients of peptic ulcer. Our finding is similar to that of Shimkin *et al* (1943) who while studying the blood histamine in different gastric diseases found in a small number of patients of peptic ulcer normal blood histamine values.

Since no correlation could be found between the fasting gastric acidity and the blood histamine level in these patients it may be reasonably concluded that the cause of the high basal acid secretion in some of these patients is to be looked for elsewhere than by the endogenous histamine liberation. Although it is difficult to arrive at a definite conclusion, certain evidence has been put forward to explain the high acid secretion in these patients. Thus the findings of Cox (1952) that the gastric mucosa of the patients of peptic ulcer contains a larger proportion of oxyntic cells than the stomach of other individuals is significant. It is likely that whatever may be the cause of endogenous stinulus the mucosa of these patients will secrete more acid compared to others as there are more acid secreting cells in these patients.

As discussed before experimental production of gastric ulcer with histamine yielded conflicting results. A single or repeated injection of histamine often failing to produce gastric ulcer though the long acting histamine in beeswax proved very effective in the genesis of gastric ulcer in different animals in which the drug caused a continuous secretion of highly acid juice. But the total dose

used in these experiments were enormous and it is unlikely that such a high liberation of endogenous histamine occurs in these patients as in that case the patients would have shown other effects of histamine. Furthermore, there appears to be some species difference in the response to histamine. Thus Basu Mallik (1955) failed to get gastric ulcer in albino rats after repeated injections of histamine in beeswax. The present investigation did not show any evidence that endogenous liberation of histamine has any role in the genesis of peptic ulcer in human patients.

Summary

Blood histamine level in 20 patients of chronic peptic ulcer in the active stage of the disease was determined. It varied from 1·0 to 8·0 microgram/100 ml. in 19 patients and was 17·5 γ/100 ml. in one. The average was 4·1 γ/100 ml. There was no correlation between the fasting acid level in the gastric juice and the blood histamine level.

Acknowledgments

We are grateful to Principal A. K. Dutta Gupta for permission to use hospital records. We also wish to record our thanks and appreciation to Dr. S. Roy of University College of Science for giving us laboratory facility during this work and to the physicians and surgeons of N. R. S. Hospital who kindly allowed the authors to investigate on their patients.

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CLINICAL EXPERIENCE WITH BZ 55—OBSERVATIONS ON THE RESULTS

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The effectiveness of BZ 55 in certain types of diabetes mellitus is fairly well established. It was decided to evaluate the drug clinically and also to undertake experimental work to study the mechanism of its action. The following is the report of our clinical work. Lack of opportunity of a thorough laboratory service and limited supply of the drug permitted only a small number of patients to be treated with this drug.

Material and Method

The diabetic patients admitted in the Sassoon Hospitals, Poona, under our care, were examined carefully and stabilised on the hospital diabetic diet for at least 48 hours before commencing the treatment with BZ 55, though most of the patients were observed for a period of over a week.

The following laboratory investigations were carried out : (1) Complete haemogram ; (2) serum protein determination ; (3) van den Bergh, thymol turbidity and icteric index tests ; (4) E.S.R. and (5) blood cholesterol estimations.

After the period of stabilisation, a glucose tolerance test was carried out and the above mentioned investigations completed. On the day of glucose tolerance test, but after it, the patient received two tablets of BZ 55, thrice. Thereafter one tablet three times a day. After a week to ten days a second tolerance test was carried out and all the investigations repeated. Blood and urinary content of BZ 55 were estimated. Subsequently only fasting blood sugar (F.B.S.) was determined from time to time and the dose of BZ 55 adjusted accordingly. During the patient's stay in the hospital total daily urine volume and total daily urinary excretion of glucose were noted.

Case Reports

Case 1—Smt. T.B.J., a female patient of 50 years, had polyuria and itching all over the body for two years. During the past two months she complained of

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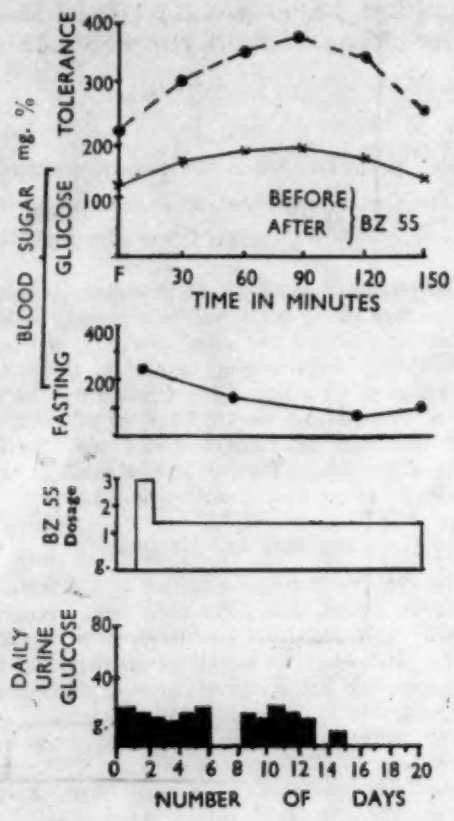

FIG. 1

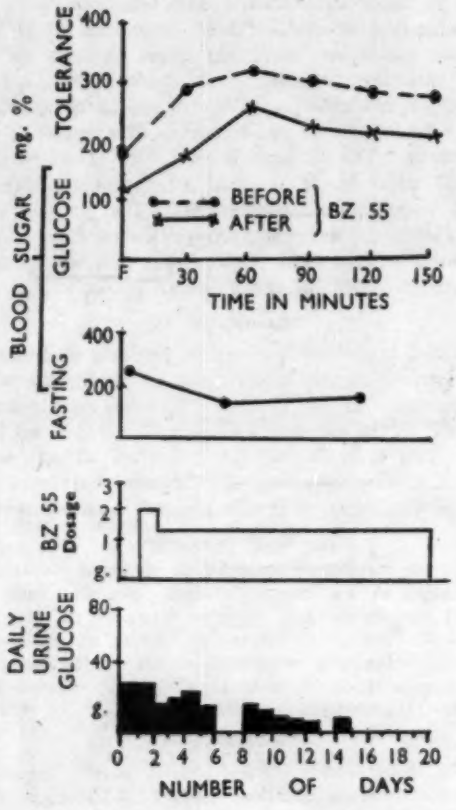

FIG. 2

pain in her chest and giddiness. Nine months previous to her admission she was on a low carbohydrate diet and received 20 units of insulin every four days for some time. On admission her weight was 126·5 pounds. Clinical examination revealed nothing abnormal. Her fasting blood sugar was 207 mg. per cent and the total daily urinary excretion of glucose was 18 g. (Fig. 1). Other laboratory tests were normal. After 12 days of BZ 55 treatment her fasting blood sugar was 102 mg. per cent; the urine was sugar free and the weight was 126 pounds. The laboratory tests showed no appreciable change from the previous figures.

Case 2—Smt. D.A.P., a female patient of 40 years, was admitted for tingling and numbness in the legs, pain in the chest, polyuria and surprisingly, loss of appetite and these were for two months. She was on low carbohydrate diet during that period but had received no insulin. Clinical examination revealed nothing abnormal except the signs of peripheral neuritis. Her weight was 128 pounds, the fasting blood sugar 200 mg. per cent (Fig. 2) and other laboratory tests were normal. After a week of BZ 55 treatment the fasting blood sugar came down to 106 mg. per cent, the urine became sugar free, the weight was 128 pounds and the laboratory tests were essentially unchanged from the previous ones.

Case 3—N.M.P., a male patient of 70 years was known to be diabetic for 2 years and received insulin intermittently. At the time of admission he complained of polyuria, pain in the legs, loss of memory and giddiness. His weight was 138 pounds, the fasting blood sugar was 226 mg. per cent and the daily urinary excretion of glucose was 36 g. (Fig. 3). After a week of BZ 55 treatment his fasting blood sugar was 181 mg. per cent and after a fortnight it was 222 mg. per cent. The urinary excretion of glucose was unchanged. Then the dose of BZ 55 was increased to one g. B.D. and simultaneously the patient was given 5 units of insulin daily before lunch. This reduced the urinary excretion of glucose and the blood sugar came down to 113 mg. per cent. Then insulin was discontinued but the patient's condition did not worsen. After two months of treatment his fasting blood sugar was 103 mg. per cent and the urine was sugar free.

Case 4—Smt. A.G.S., a female aged 25 years, was a severe diabetic. She had polyuria, voracious appetite, and pain in the limbs and abdomen. Her fasting blood sugar was 540 mg. per cent (Fig. 4) to start with and

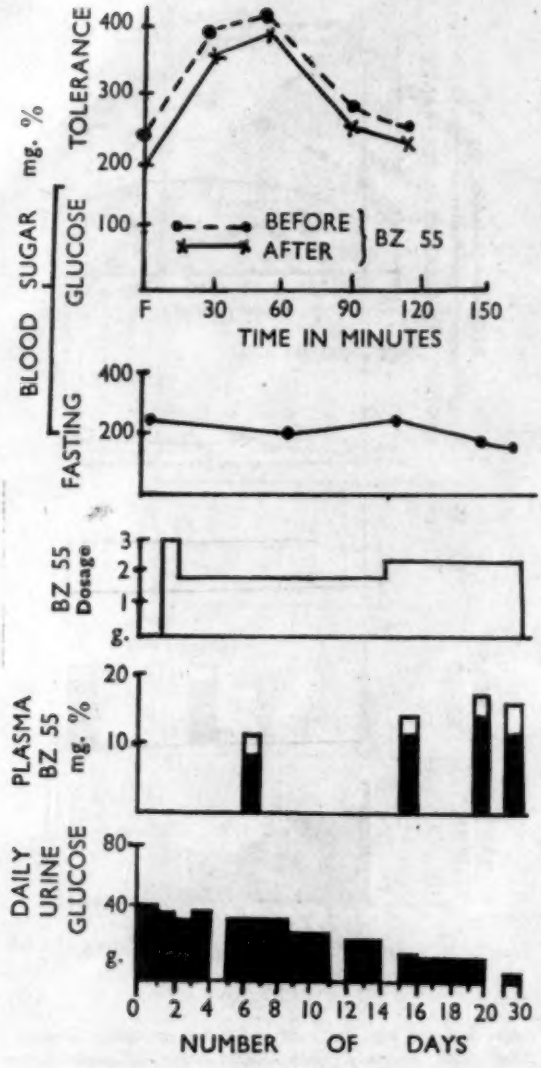

FIG. 3

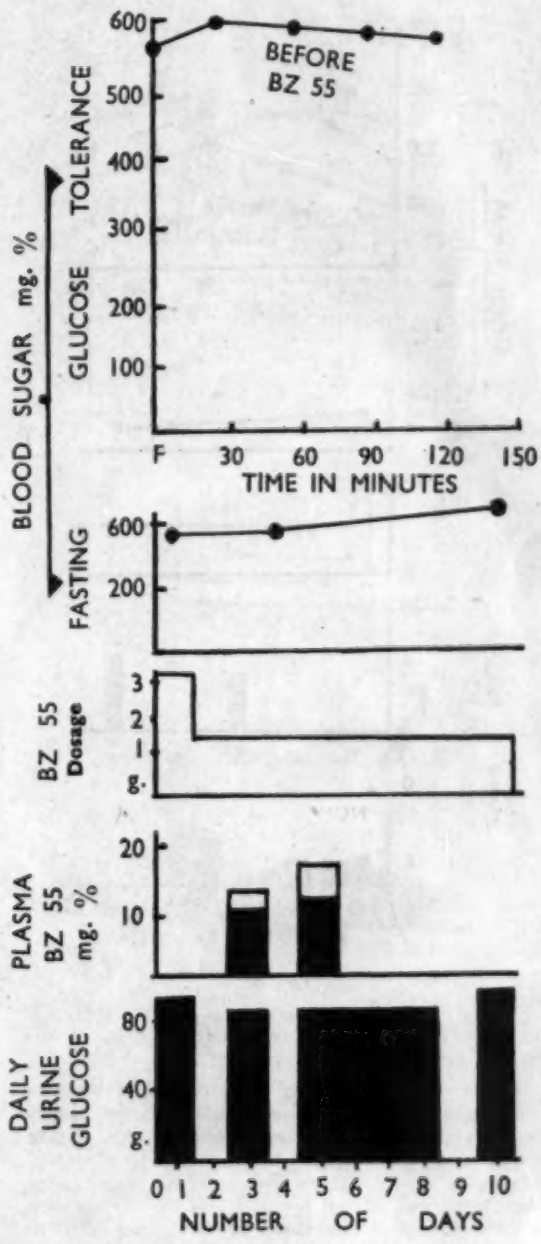

FIG. 4

the urine contained acetone. She was given insulin initially but all insulin was discontinued 24 hours before starting BZ 55 therapy. The glucose tolerance test was done and BZ 55 therapy was commenced. After a week of therapy her fasting blood sugar was 571 mg. per cent and the urine contained acetone. BZ 55 was thereafter discontinued and insulin recommenced.

Case 5—Smt. L.T.G. was admitted for frequency of micturition, loss of appetite and giddiness, pain in the legs and thirst for two months. She received no insulin. On examination nothing abnormal was detected. Her fasting blood sugar was 155 mg. per cent, the weight was 119 pounds and the daily urinary excretion of glucose was 8 g. (Fig. 5). After a week's treatment with BZ 55 her fasting blood sugar was 140 mg. per cent and after a fortnight it was 108 mg. per cent and the urine became sugar free. We are doing a long term study on this case and she is well maintained on one tablet daily. This patient had discontinued the treatment for twelve days. At the end of this period her fasting blood sugar rose from 108 mg. per cent to 136

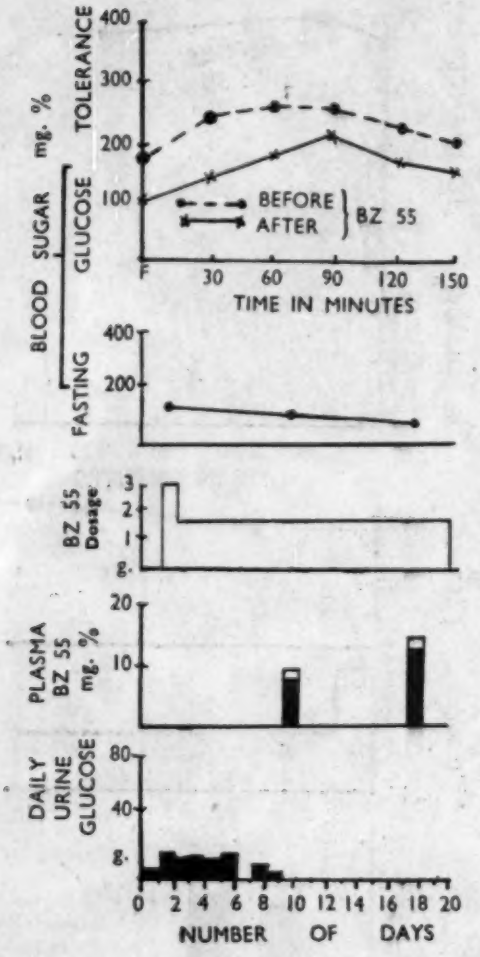

FIG. 5

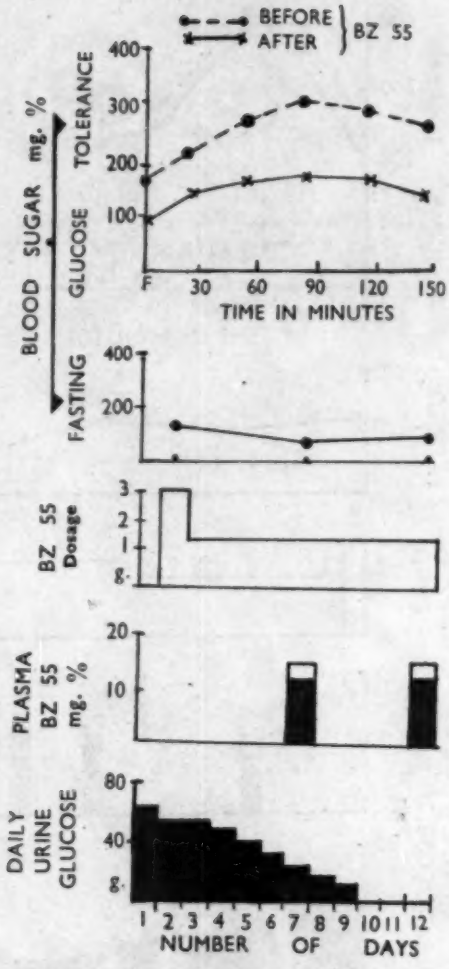

FIG. 6

mg. per cent. Her blood concentration of BZ 55 was 3·6 mg. per cent.

Case 6—S.A., a male aged 60 years, was admitted for giddiness, polyuria and loss of weight. He was diabetic for one year and had taken indigenous drugs but received no insulin. He had an ulcer on the right heel. Regional arterial pulsations were poor. His initial fasting blood sugar was 182 mg. per cent (Fig. 6). After a week of BZ 55 therapy it came down to 108 mg. per cent. He was given priscol and eupaverine tablets on the advice of a surgeon. The ulcer healed and the patient was discharged. This patient is also on long term trial and has been well maintained on one tablet daily.

Case 7—U.D.P., a male aged 40 years, was a known diabetic for 18 months. He was on low carbohydrate diet but received no insulin. At the time of his admission he was emaciated and complained of polyuria, sleeplessness and pain in the left leg. His fasting blood sugar was 296 mg. per cent and urine contained acetone. Two years previously his weight was 192 pounds; on admission it was 91 pounds. After stabilising him on hospital diabetic diet acetone disappeared from his urine and the fasting blood sugar was 290 mg. per cent. Glucose tolerance test was done and BZ 55 therapy commenced. A week later his fasting blood sugar was 115 mg. per cent and after a fortnight it was 90 mg. per cent (Fig. 7). Pain in the legs increased during therapy and was greatly relieved after a week of aneurin therapy. Aneurin was given intramuscularly in the dose of 50 mg. daily. He is under long term study and is well maintained on one tablet daily.

Case 8—G.S.G., a male aged 35 years, was a known diabetic whose fasting blood sugar fluctuated within wide limits. He had received insulin regularly for a period of one year. With 20 units of insulin daily his fasting blood sugar was 306 mg. per cent. He was

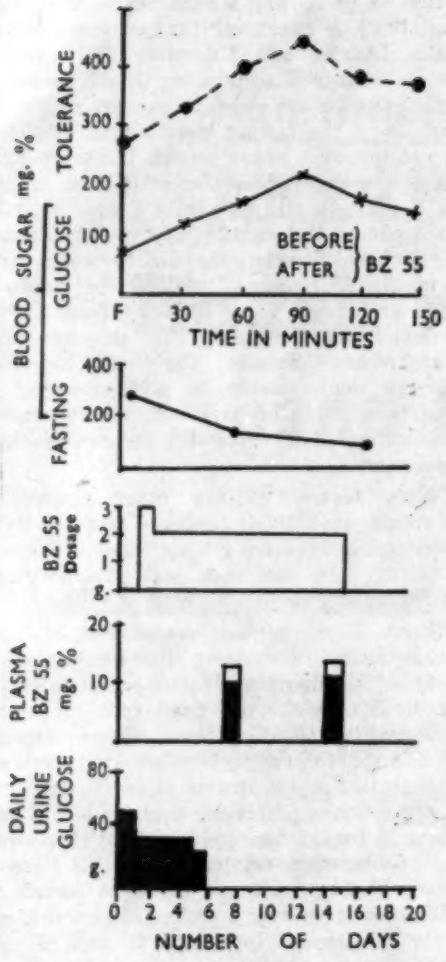

FIG. 7

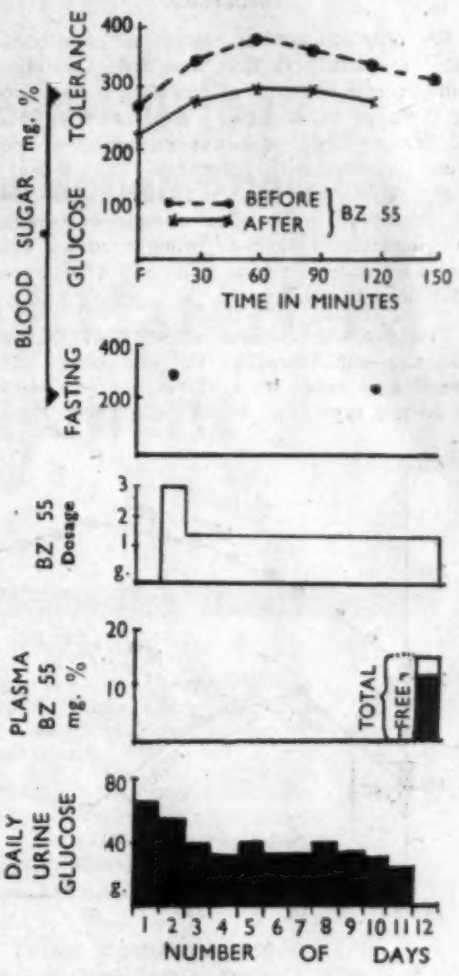

FIG. 8

treated with BZ 55 as an outdoor patient. He continued to receive 20 units of insulin daily during BZ 55 therapy. He was treated with BZ 55 for two weeks but failed to respond. BZ 55 was then discontinued.

Case 9—N.D.L., a male aged 37 years, was admitted for loss of weight, polyuria, voracious appetite and tingling and numbness all over the body for 2 years. On examination he was emaciated, showed signs of peripheral neuritis, had mature cataract in the right eye and developing cataract in the left eye. He was stabilised on hospital diabetic diet and received 50 mg. of aneurin daily intramuscularly. Tingling and numbness was less and his fasting blood sugar was 270 mg. per cent. BZ 55 therapy was commenced after doing a glucose tolerance test. After a week's therapy his fasting blood sugar was 222 mg. per cent (Fig. 8). So far he has not responded very satisfactorily. This patient is also under long term study.

RESULTS

Nine cases of diabetes mellitus were treated with this drug. Five of the cases (Cases 1, 2, 5, 6 and 7) in the older age group had had diabetes of less than two years' duration, and had not received any insulin regularly previously. These cases responded favourably. One case in the older age group (Case 3) had the disease for a longer period and had received insulin intermittently. He responded after an unusually long period. Two cases (Cases 4 and 8) in the younger age group were thin, and had severe diabetes with ketosis. These cases failed to respond. One case (Case 9) is a borderline case and has not shown good response after a week's treatment.

Discussion

We obtained similar results as have been reported previously in that, the drug was effective in mild senile diabetics of less than 2 years' standing (Duncan *et al*, 1956 ; Mody, 1956 ; Murray and Wang, 1956), and was ineffective in young severe diabetics with ketonuria. Case 7 had lost weight rapidly and had high fasting blood sugar but responded well. Case 3 was a diabetic of long duration. He was brought under control after a prolonged period and with the help of a small dose of insulin.

The glucose tolerance curve after BZ 55 retains the same form as the one before BZ 55 though at a lower level. It does not conform to the normal type (Fig. 9). This has been observed

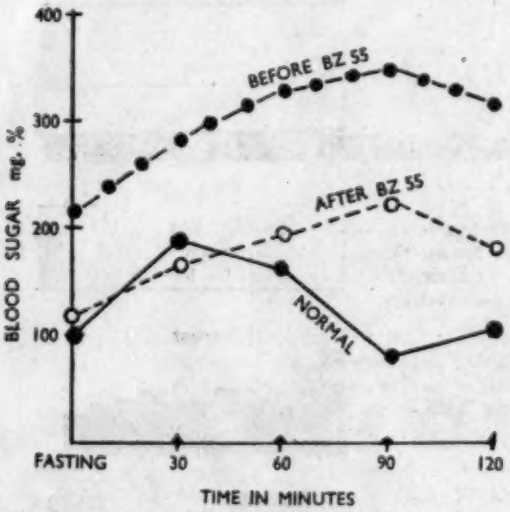

Fig. 9—Showing a Normal Glucose Tolerance Curve and its Variations in Diabetic Patients (Average of 5 Patients who Responded well) Before and After Administration of BZ 55.

by many workers (Patel *et al* 1956 ; Duncan *et al*, 1956) but no explanation has been given for this.

The normal pattern of glucose tolerance curve (Harrison 1949) indicates that the cells of the pancreas release insulin in response to moderate hyperglycaemia and hence the blood sugar is not allowed to rise above 150 to 160 mg. per cent and normoglycaemia is restored within an hour after ingestion of glucose ; whereas the pattern of the curve in the diabetic reveals defective β cell response to the stimulus of hyperglycaemia. Administration of BZ 55 in such a diabetic brings down the fasting blood sugar to normal level. If we assume the BZ 55 action to be that of preventing insulin destruction (Mirsky *et al*, 1956) or enhancing the peripheral action of insulin (Aiman and Kulkarni, 1957) then the effective insulin concentration of the plasma will increase and may come to normal and tend to bring down the fasting blood sugar. But as the glucose tolerance curve retains the same diabetic character after BZ 55 as before (Fig. 9) it is clear that the β cells still remain in a state of inability to respond to the stimulus of hyperglycaemia. It is improbable therefore that BZ 55 causes increase in insulin secretion as asserted by Loubatieres (1955) and Pozza *et al* (1956). Hence the drug is not a true corrective of the fundamental derangement of diabetes. The fasting blood sugar, therefore, may merely be a false safety sign. Long term study of its effects in the control of complications like retinopathy and neuropathy etc. is necessary.

With regard to the other investigations we found that liver function tests and blood cholesterol levels were not appreciably affected by the drug. In no case was granulocytopenia observed.

Some of our patients complained of increase in their neuritic symptoms after administration of BZ 55. This diminished after adequate doses of vitamin B_1. While the usual type of sulphonamide toxicity such as bone marrow depression urticaria etc. have often been reported, little stress has been laid on the danger of developing vitamin deficiency after prolonged therapy of BZ 55 resulting in continuous sterilisation of the intestinal tract. With other sulphonamides this is not important as they are given for short periods ; but as BZ 55 is given over a prolonged period adequate supply of vitamins especially 'B' and 'K' either in the diet or as supplement should be assured.

Patel *et al* (1956) have reported development of boils in their patients after BZ 55 therapy, though the blood sugar was within normal limits. As the dosage of BZ 55 is less than that of sulphadiazine as used for chemotherapeutic purposes, prolonged exposure of the normal bacteria to the low levels of sulphonamide might inhibit the more sensitive ones and make the less sensitive ones resistant to the drug. This uninhibited growth of the less sensitive bacteria might be responsible for the production of boils.

Since a potentially toxic drug like BZ 55 is to be given over a prolonged period it is necessary to reduce the maintenance dose to the minimum, with the help of frequent blood sugar estimations. We have maintained three patients on one tablet daily.

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The blood sulphonamide estimations show that the effective level is in between 8 and 12 mg. per cent of the free drug. That the drug can be excreted very slowly is shown in Case 5 in whom there was detectable BZ 55 in blood twelve days after the drug was discontinued.

The drug appears to be effective in mild senile diabetics but the question to be settled is whether it is preferable to or as effective as insulin. As already pointed out (Leading article, *Lancet*, 1956), combination of BZ 55 with the older line of therapy only complicates the issue with no practical advantage.

It is ineffective in juvenile and the thin ketotic types which are really the chief problems in the control and stabilisation. At present the drug is probably a more important laboratory tool than a very valuable therapeutic agent. However apart from the brief popularity of synthalin this group of drugs is the first success in the long search for an orally effective antidiabetic drug.

ACKNOWLEDGMENTS

We wish to acknowledge the assistance of Dr. S. G. Bhandiwad in carrying out some of the clinical investigations. We are thankful to the Pathology Department of this college for the co-operation extended in carrying out the liver function tests and the blood cholesterol levels. We are grateful to the Honorary Physicians of the Sassoon Hospitals, Poona for referring to us their diabetic patients, and to Hoechst Fedco Pharma Ltd. for the supply of 'Invenol' brand of BZ 55.

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TREATMENT OF VAGINAL MONILIASIS

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Monilial infection of the vagina has assumed considerable importance during recent years. Its incidence seems to have greatly increased following the widespread use of broad spectrum antibiotics.

Several drugs have been employed in the treatment of vaginal moniliasis with varying degrees of effectiveness. These include local application of 1-2 per cent gentian violet, weak tincture of iodine, di-iodohydroxyquinoline, fatty acids like propionic, ricinoleic and caprylic acid, pentavalent arsenicals, and 0·1-0·5 per cent of alcoholic solution of methyl violet. Though effective in most cases, the treatment with these drugs has not been entirely satisfactory. Gentian violet, for instance, has led to local irritation and staining of parts, underclothes and linen. Jennison and Llywelyn-Jones (1957) have reported a higher relapse rate with gentian violet in comparison to nystatin. The fatty acid treatment has led to mild irritation while the arsenicals have not been quite successful apart from causing ulcerative vaginitis.

Nystatin, the new antifungal antibiotic discovered in 1950 by Hazen and Brown has been found to give encouraging results in vaginal moniliasis.

The antibiotic was isolated from cultures of *Streptomyces noursei* by extraction with methanol and purified by ethyl acetic and alipathic alcohol. The product is slightly yellow, containing C= 59·96 per cent, H_2=9·08 per cent and N_2=1·82 per cent. It does not contain halogens and sulphur. Nystatin gives violet colour with sulphuric acid while the ultraviolet spectrum shows absorption at 236, 241, 304 and 319 millimicrons. It is a fungistatic agent against a wide variety of

saprophytic and disease-producing fungi but is totally inactive against bacteria. It is effective prophylactically and therapeutically against moniliasis induced in rabbits in conjunction with tetracycline administration. The antibiotic is believed to be relatively non-toxic and is said to possess few side-effects.

Method and Material

During an investigation on leucorrhoea conducted in this institution in 1956-57, an opportunity presented itself to evaluate the role of nystatin vaginal tablets in the treatment of vaginal moniliasis. The plan of work that was followed has been described earlier (Pandya *et al*). Of the 400 cases investigated for leucorrhoea, we came across 36 patients who were suffering from vaginal moniliasis.

Diagnosis

Diagnostic criteria—The presence of *Candida albicans* does not necessarily mean clinical moniliasis, else we should all be chronically ill. It is for this reason that our diagnosis was not based on a single criterion like the microscopic demonstration of candida. We adopted the following diagnostic criteria:

(1) Clinical evidence of vulvovaginitis.
(2) Characteristic discharge (white, tenacious, cheesy discharge which when removed leaves the wall red and rugose).
(3) Microscopic evidence of presence of yeast cells in the discharge. Apart from the examination of a wet preparation this included demonstration of typical hyphae and spores in stained smears.
(4) Cultural demonstration of *Candida albicans*.
(5) Dramatic response to specific antimonilial therapy (nystatin).

Symptomatology

All the 36 patients came with a history of increased vaginal discharge. The discharge was of recent onset in 19 cases and was present for over two months in 9. In 8 patients, it was present for over a year. Itching around anus was present in 34 cases and burning micturition was complained of by 33 patients. Dull continuous pain in lower abdomen was present in 6 patients. Regarding parity, of the 36 patients, 8 were nulliparae, 9 were primiparae and 19 were multiparae. It is, thus, easy to observe that the incidence of moniliasis rises with parity. Lang and Stella (1957) are agreed that vulvovaginal candidiasis is more common in the pregnant than in the non-pregnant.

Clinical evidence of vulvovaginitis was present in all cases. Only one patient did not complain of pruritus vulvae. Cervicitis was seen in 2 patients. As for the nutritional status, haemoglobin concentration was less than 12 g. per cent in 24 patients and the red cells were less than 4 million/c.mm. in 22 cases. There was reasonable evidence to suggest that 24 patients were receiving a nutritionally poor diet.

The nature of the discharge—The discharge was typical and as described under the diagnostic criteria, in 32 patients. In the other 4 cases, the discharge was atypical in the sense that it was either yellowish white or white and thin and not curdy. The pH of the vaginal discharge was determined with the help of E. Merck Universal Indicator paper pH 1 to 10. The pH was between 5 and 6 in 2, 6 in 33, and 7 in one case.

Results

Therapeutic trial—32 patients were treated with nystatin (mycostatin) vaginal tablets on the following schedules:

Schedule A—1 tablet at bed time—16 cases.
Schedule B—2 tablets at bed time—16 cases.

The patients were instructed to insert the tablets high in the vagina. No applicator was used in any case. Table 1 gives the results at a glance.

The criteria employed for judging the response to treatment were as follows:

1. Excellent—clinical and mycological recovery in 7 days.
2. Good—clinical and mycological recovery in 8 to 14 days.
3. Fair—clinical and recovery not accompanied by mycological recovery at the end of two weeks.

It will be seen that in each drug therapy schedule patients have been grouped according to the duration of treatment namely less than 7 days, 8 to 14 days, and over 14 days' treatment.

SCHEDULE A:

Group 1 (Treatment for less than 7 days)—Only one patient was treated for a period of 6 days. Complete recovery took place in this period. Microscopically the fungus could not be detected from the 12th day. There was no relapse, clinical or mycological for at least 9 weeks. The result was, therefore, considered good.

Group 2 (Treatment for 8 to 14 days)—Twelve patients were treated in this series. Complete clinical recovery occurred in all the cases within 14 days. Mycological investigation was negative

TABLE 1—SHOWING THE RESULTS OBTAINED WITH NYSTATIN VAGINAL TABLETS

Schedule	Period of therapy	No. of patients	Results			Clinical recovery	Mycological recovery	Relapse		Period of follow-up
			Excellent	Good	Fair			Clinical	Mycological	
A 1 tab./day	Group I Less than 7 days	1	—	1	—	In 6 days	From 12th day	Nil	Nil	9 weeks
	Group II 8-14 days	12	—	10	2	Within 14 days in 12 patients	From 13th day—10 patients	Nil in 10 patients	Nil	Nil in 1 patient 1-3 months in 9 patients
							From 19th day— 2 patients	One patient—from 8th day Other patient—after 2 months		Retreatment led to good results for 3-6 months
	Group III More than 14 days (18-20 days)	3	—	3	—	In 18-20 days	From 20th day	Nil	Nil	2 weeks in 1 patient 5 weeks in 2 patients
B 2 tab/day	Group I Less than 7 days	Nil	—	—	—	—	—	—	—	—
	Group II 8-14 days	14	—	7	7	Within 14 days in 14 patients	From 14th day—7 patients From 20th day—7 patients	Nil in 10 patients	Nil	3-6 months
								Nil	2 patients after one month	Retreatment for 12 days led to cure with follow-up for 4-5 months
								38th day—One patient (diabetic)—38 days		Prolonged treatment with oestrogens, insulin and mycostatin vaginal tablets led to cure. 6 months follow-up
								69th day—One patient (pregnant)—60 days		Retreatment for 12 days. Another relapse after one month. Retreatment led to a symptom- and culture-free period of 3 months of follow-up
	Group III More than 14 days (15-18 days)	2	—	—	2	Within 15-18 days	Within 18-21 days	Nil	Nil	Two months

from the 13th day in 10 patients and from the 19th day in two patients.

No relapse was observed in ten patients. In 9 of these, a follow up ranging from 1 to 3 months was available. The other two patients relapsed, one on the 8th day after treatment and the other two months following completion of the treatment. Both these patients responded to retreatment with the drug and were both symptom-free and culturally negative for a period of three and six months respectively.

Group 3 (Treatment for more than 14 days)—Three patients were treated for a period of 18 to 20 days during which period clinical recovery was observed. The cultures were negative from the 20th day and this remained so for two weeks in one patient and for five weeks in the other two patients.

SCHEDULE B:

Group 1 (Treatment for less than 7 days)—No patient could be treated on this basis.

Group 2 (Treatment for 8 to 14 days)—The 14 patients who were included in this group were all symptom-free in two weeks. Culturally, 7 patients were negative from the 14th day and the other 7 patients were negative from the 20th day. No relapse was seen in 10 patients. A three to six months' follow up was available in these patients.

Of the 4 patients who relapsed, two patients were symptom-free all the time. The relapse in these two cases can be considered only on a mycological basis. Retreatment for 12 days led to a cure with a follow up of 4 and 5 months respectively.

The other two cases returned with relapse on 38th and 69th day after treatment. One of these was diabetic and the other was pregnant. In both the patients candida could be detected at the time of the relapse. The diabetic was treated with insulin, oestrogens and nystatin vaginal tablets with good results. Cultures were negative for a period of six months. The pregnant patient was further treated with nystatin vaginal tablets for 12 days. She again relapsed a month later. Retreatment led to a symptom-free and culture-free period of 3 months of follow up.

Group 3 (Treatment for more than 14 days)—Two patients received the vaginal tablets for 15 and 18 days respectively. Clinical recovery was obvious by this time. The cultures were negative after 3 weeks and everything was well for two months of follow up period.

Discussions

The pattern of response was generally identical. Pruritus was rapidly relieved, within two to three days. The amount of discharge became less and less after about 3 days but it took many more days—10 to 14 in most for complete disappearance. Symptomatic relief was rapid. We have, however, observed that clinical recovery is not simultaneously accompanied by mycological recovery. In general, the fungus was demonstrable for a few more days after clinical recovery was achieved.

According to the therapeutic criteria adopted by us, the drug was found to be effective in all cases. The response was good in 14 patients in schedule A and 7 patients in schedule B. It would thus appear that schedule B is less effective than schedule A. This is not really so since judging by the criterion of clinical recovery, 7 more patients responded satisfactorily in schedule B, group 2. The apparent discrepancy can be explained by the fact that mycological recovery may take a little longer time than the clinical recovery. On an over-all basis all the 32 patients responded satisfactorily to treatment as judged clinically. It is only when the rate of disappearance of the fungus is simultaneously considered that we are able to explain the apparent discrepancies that follow from our therapeutic criteria. It is probably for this reason that Blank (1957) asks the clinician to rely on the laboratory to confirm his clinical diagnosis but to plan his therapy on the basis of the patient's clinical report. Pace and Schantz (1956) reported a cent per cent recovery in the pregnant and 96·3 per cent in the non-pregnant while all the 17 patients in Wright's series responded well (Wright *et al*, 1957). 47 per cent of these cases showed a positive culture after therapy had been stopped. In the series treated by Jennison and Llywelyn-Jones (1957), candida were seen one week after treatment with nystatin in 5 out of 16 pregnant cases. They were absent in all the 19 non-pregnant patients at this time.

Blank (*loc. cit.*) in discussing the "cure" in moniliasis feels that with an effective therapeutic agent the disappearance of clinical lesion is accompanied by a marked reduction or disappearance of *Candida albicans* in the area being treated. When treatment is stopped, the area often remains clinically clear, but after a period of time, the yeast may reappear on culture. This phenomenon was observed by us in 2 patients (schedule B, group 2) where cultures turned positive one month after completion of treatment. This was not accompanied by a clinical relapse.

According to Blank (*loc. cit.*), it would be surprising if the yeast cells did not return either by extension from a focus in the patient himself

or by reinfection from the vast number of carriers in the population. Fortunately, mycological relapse is not necessarily associated with clinical relapse. Clinical lesions reappear especially if precipitating factors such as pregnancy, diabetes or antibiotic administration are present. This was observed in two of our patients (schedule B, group 2). The pregnant patient had to be repeatedly treated. Lang and Stella (*loc. cit.*) treated their 69 patients with nystatin tablets, one tablet twice daily for 10 days. Though the antibiotic was found to be clinically effective, the cultures become negative in slightly more than one-half the cases after the first course of treatment. Of those remaining positive after the first course, approximately one-half became negative after a subsequent course. In general, those that became negative remained so.

In schedule A, only 2 patients relapsed out of 16—a rate of about 13 per cent. Both clinical and mycological relapse was observed.

In schedule B, again 2 patients relapsed both clinically and mycologically. Two other patients showed a mycological relapse alone. Relapse rate was thus identical in both the schedules if clinical criteria were observed. It has also been observed by us that relapses respond to retreatment.

pH—It will be recalled that the pH of the vaginal secretion in most of our patients before treatment was 6. Surprisingly enough, no change was observed after treatment. This experience is in agreement with that of Pace and Schantz (1956) who do not consider the pH of the vagina an important factor in the development of moniliasis. So far as they could determine, the pH played no part in the production of vaginitis in any of the patients in their series. Their experience suggests that the importance of both the pH and the glycogen content is perhaps overemphasized.

Duration of therapy—Nystatin has been found to be effective in all the cases of monilial vaginitis. Our findings indicate however that best results are achieved when patients are treated for about two weeks. It would appear that one tablet per day is as effective as two tablets per day. Schedule A is generally recommended for most patients. If the clinical condition is rather severe or if precipitating factors like diabetes or pregnancy are present, schedule B is preferable. In such cases, simultaneous oral therapy is also advocated. We have no experience in this regard.

Summary

Thirty-two patients suffering from vaginal moniliasis were treated with nystatin vaginal tablets.

Clinical and mycological response to treatment has been described.

Nystatin appears to be a useful specific agent in the treatment of infection caused by *Candida albicans*.

Acknowledgments

Our thanks are due to the Assistant Professors of the Department and the Resident Staff for the assistance they rendered. We are also thankful to the Superintendent of the Hospital for the facilities given in carrying out this work. The investigation was supported by a Research grant from Sarabhai Chemicals, Baroda, to whom we express our thanks.

Nystatin used in this study was supplied as Mycostatin vaginal tablets by E. R. Squibb and Sons, New York.

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PRACTITIONERS' SERIES

MANAGEMENT OF DIABETES MELLITUS*

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Diabetes mellitus is a multi-aetiological metabolic disorder in which there is either insufficient insulin secretion or increased inhibition of insulin action. This fundamental concept must always be borne in mind in connection with its management which is apt to vary from one case to another. The subject may conveniently be discussed as under :

Diet

Opinions vary widely as to the role of a specified diet. Even diametrically opposite views are entertained by different groups of equally eminent workers. Anything ranging from a very

* Based on a lecture delivered at the Indian Medical Association, Calcutta Branch, 1957.

strict dietetic regimen to almost unrestricted abundance is advocated and comparable successes claimed. In any case, the idea is to attain both clinical as well as chemical control. The former demands that the signs and symptoms should disappear, and the latter claims that the blood sugar level should be within normal limits and that the urine should not contain any sugar.

It is, however, felt that chemical control, the achievement of which is of fundamental importance towards the prevention of late complications such as atherosclerosis, must be aimed at in every single patient. This becomes easier with a set diet. Hence it is desirable that the patient thrives on a square meal prescribed on the basis of certain calculations.

Usually a restricted fat intake to the maximum of 90 g. a day is recommended with a protein intake of about 1 g.-1·5 g. per kilo body weight. The rest of the calories is derived from carbohydrates. The appetite is best satisfied with plenty of green vegetables; and a suitable fruit should be taken daily. The monotony may be overcome by changing the diet from time to time. A table showing alternatives to various types of foods in equivalent amounts (Food Exchange Table) is very useful for this purpose. The total caloric requirement is found out from the standard age-height-weight table. 25 calories per kilo body weight (1 kilo=2·2 lb.) is accepted as the usual adult requirement. The actual diet is then prescribed after consulting the food tables. Thus for the specification of a diet three things are necessary: the standard age-height-weight table, the food chart showing total amount of proteins, fats, etc., with the number of calories in a definite quantity of various articles of diet commonly consumed and a food exchange table (as shown in the annexure). It is seen that the total carbohydrate ration is distributed uniformly between all the meals in 24 hours as far as practicable.

Milk and/or its products are the principal sources of protein for the vegetarians and should be taken in adequate quantity by them. Children should be given extra diet considering their growing age period; extra protein is most valuable and at least ½ seer of milk should be taken by them daily. An added amount of diet must also be given in pregnancy. In complications, the diet is determined by the particular system or organ involved.

Insulin

It must be realised that almost all the diabetics will require insulin at one time or other, e.g., during infection, operation, etc.

SOLUBLE INSULIN:

Soluble insulin (SI) is the most powerful, quickest in action and most dependable in its effect. This remains the insulin of choice in the treatment of ketosis, severe juvenile diabetes, individuals taking irregular meals and often in surgery. This is the insulin of emergency. The one important drawback is its short duration of action which necessitates at least two daily pricks for an average patient. Soluble insulin starts acting within 15 minutes of its administration; attains maximum effect in 4 hours; and the effect lasts for about 8 hours.

LONG ACTING INSULINS:

There are several preparations of long acting insulin like globin insulin (GI), protamine zinc insulin (PZI), neutral protamine Hagedorn or isophane insulin (NPH), semi-lente insulin, ultra-lente insulin and lente insulin were obtained. At the moment diabetics can be stabilised with one injection daily in a vast majority of cases, using one or more of the above preparations singly or in combination.

Globin insulin—Globin insulin starts acting 3 hours after injection, attains peak in 8 hours which gradually tails off in 16 hours. It is not used now-a-days.

Protamine zinc insulin—Effect of PZI commences from 6th hour after injection, has its maximum in 12 hours and lingers upto 24 hours. With PZI there is an initial lag period of 6 hours following its injection which is to be covered with soluble insulin whenever necessary. On account of sustained action, this preparation of insulin may give rise to subtle hypoglycaemia especially while the patient is sleeping at night with serious consequences. This preparation, moreover, may cause sterile abscess formation at the sites of injection. Inspite of all these shortcomings an average diabetic requiring insulin can be maintained well within control with a single daily injection of combined SI and PZI. It is worthwhile to remember that in a mixture of SI and PZI some of the SI combines with the protamine of PZI and is converted into depot form and is virtually lost. It is thus advisable to use separate syringes for injection.

NPH insulin or isophane insulin—It is essentially a modification of PZI, with an added advantage in that it has both immediate and late action.

Lente insulins—These are zinc insulin suspensions in acetate buffer. The size and form of the insulin zinc particles vary with the change of pH of the medium; and the duration and prompt-

ness of insulin action depend on the size and form of the particles thus precipitated. The amorphous form *semi-lente* maintains action for 16 hours and the crystalline form *ultra-lente* acts for about 36 hours. A suitable mixture of these two, consisting of 30 per cent amorphous and 70 per cent crystalline, known as *lente insulin* has an effect lasting uniformly for about 24 hours. The added advantage of this latest preparation over its predecessors is that it starts exerting its action within half-an-hour of its exhibition.

Certain vagaries of insulin action appear to be interesting and are of real practical importance which should be carefully borne in mind. Different individuals with the same degree of diabetes may require different dosage of the same insulin preparation ; people's insulin sensitivity may vary from time to time with the same degree of diabetes ; complications may follow inspite of insulin therapy and adequate diabetes control.

TREATMENT WITH INSULIN :

At the commencement of treatment an initial dose of 4-10 units is usually given which is subsequently increased or reduced by 2-4 units every 4th day till the adequate stabilisation is obtained as judged from examination of blood and urine sugar. A single dose of insulin at the commencement should not usually exceed 30 units. The injections are made about half-an-hour before the principal meal. Exercise is best avoided for at least 3-4 hours following an insulin injection. When urine becomes sugar free the dose of insulin is adjusted according to the blood sugar level. The more exercise an individual takes the less insulin he requires as exercise tends to lower blood sugar level. Thus a patient doing a strenuous job, if stabilised as an in-patient, must be advised to take less insulin when he resumes his duties. Sometimes it is desirable that such patients are treated from the out-patients' department. While in hospital a diabetic may be given a slightly higher dose of insulin than he normally requires for one or two occasions, so that he gets a few hypoglycaemic attacks and acquaints himself with the symptoms and subsequent management of the condition.

Diabetics even during the process of normal control may suffer from hypoglycaemic symptoms inspite of high or normal blood sugar, on account of falling of blood sugar level. The patients may also be taught the technique of insulin injection and urine examination. Some authorities maintain that it is better to leave a diabetic with a trace of sugar in urine especially when at large in order that he never develops hypoglycaemic attacks.

Mild diabetics—A mild diabetic with normal fasting and high post-prandial blood sugar may be controlled with PZI alone. In a mild diabetic with fasting blood sugar within normal limits and showing only a post-prandial rise, the urine becomes sugar free in about 4 days on a diet and the blood sugar level usually touches normal in about a week's time. If, however, the urine does not become sugar-free and/or the post-prandial blood sugar remains higher, drug treatment is indicated.

Lean diabetics—The young lean diabetics manifesting acute symptoms are intensely insulin sensitive and always require it badly. Such patients are very prone to develop ketosis and must never be treated with anything other than insulin.

Obese diabetics—The obese middle-aged post-menopausal diabetic women, on the other hand, are best stabilised on a diet alone. Insulin injection in such subjects may even prove harmful as it may lead to further obesity by stimulating appetite.

Moderately severe diabetics—In moderately severe diabetics showing high fasting blood sugar more attention should be paid to drug therapy as a diet alone will not control them in most instances. In severe diabetics and those in pre-coma state, showing both sugar as well as acetone in urine, insulin must be started from the very beginning.

Brittle diabetics—These patients suddenly swinging on from ketosis to hypoglycaemia without any apparent reason present a therapeutic problem. It is well nigh impossible to stabilise these patients on a fixed dose of any available medicine. Only careful vigilance and prompt treatment of the appropriate condition are all that can be done. Personal observation of the patient is of great help.

Steroid diabetics—The steroid hormones are frequently used now-a-days. One of the side-effects of these compounds is hyperglycaemia with or without glycosuria. This "steroid diabetes", as it is called, should be treated along usual lines remembering that these are relatively insensitive to insulin.

Endocrinal diabetes—The "diabetes" of certain endocrine diseases like Cushing's syndrome, thyrotoxicosis, acromegaly, gigantism, etc. will disappear with proper management of the underlying endocrine disorder. Undernutrition from any cause (e.g., malabsorption) leads to inhibition of insulin secretion. Such patients during the process of recovery may manifest hyperglycaemia.

The "hunger diabetes" takes care of itself and is best left alone.

SIDE EFFECTS OF INSULIN :

(a) *Visual disturbance*—It starts 3 to 4 weeks after commencement of treatment. This is due to altered osmotic tension of the ocular media. Patient grows out of it.
(b) *Hypoglycaemia.*
(c) *Local action*—Reddening and pain. This usually passes off ; may persist in hypersensitive individuals ; antihistaminics are useful ; spontaneous desensitisation may occur. Different brand of insulin may be tried.
(d) *Sterile abscess formation.*
(e) *Fat atrophy.* This may be disabling and there is no cure. Women and adolescents are particularly liable.

INSULIN RESISTANCE :

This is usually a temporary phenomenon, being mostly observed during ketosis associated with infection. Very high dose of insulin may be necessary which should be given without hesitation. With the process of recovery insulin requirement comes down. Cause is not known.

SULPHONAMIDES

Inspite of the discovery and subsequent development of insulin therapy the search for an oral anti-diabetic drug continued till about 1941 when the hypoglycaemic effect of certain sulpha group of drugs first came under observation. This blood sugar lowering effect closely simulates insulin action in all respects. Experimentally it was demonstrated in dogs that the presence of pancreas is essential for this effect. The actual modus operandi, however, is yet to be found. Two theories are current at the moment, viz., stimulation of β-cells, so that more insulin is made available or depression of α-cells causing inhibition of diabetogenic glucagon thereby. This drug, though useful in certain types of patients has its definite limitations, and must always be used in suitable cases with caution.

Indications—Most favourable results are claimed in obese elderly patients, with short history and who have not taken insulin. The drug, however, may also be given in patients already on insulin therapy, but the change over must be carried out under strict supervision.

Contraindications—The preparations available at the moment must never be used in ketosis, young juvenile cases and in diabetics with certain complications especially infection. It must be borne in mind that the therapeutic scope of the compound is very limited at the moment, admitting at the same time that the line of research holds a very bright future.

Side reactions—Cutaneous reactions like pruritus, urticaria and more widespread allergic dermatitis have been encountered. Bone-marrow depression may also occur. These toxic manifestations, however, are infrequent.

Dosage—An average dose of 4-6 tablets (0·5 g. each) in divided doses is given on the first day, then 3 tablets on 2nd and 3rd day and subsequently 1-2 tablets daily or alternate days as maintenance dose. The tablets are given after meals.

OTHER MEASURES

Attention to septic foci, some amount of physical exertion, regular habits, avoidance of constipation, care of the feet, avoidance of dietetic excesses are important.

EVIDENCES OF CONTROL

The following may be regarded as evidences of adequate control of diabetes mellitus :

1. Absence of signs and symptoms. 2. Absence of ketosis. 3. Absence of hypoglycaemia. 4. Maintenance of adequate weight. 5. Ability to carry on with usual day to day work, without undue exertion.

COMPLICATIONS

DIABETIC KETOSIS :

Diagnosis must be made long before the patient becomes unconscious. Infection is an important precipitating factor. Clinically, the early symptoms consist of gastro-intestinal complaints like anorexia, nausea, vomiting, constipation and pain in the abdomen. There is frequent passage of urine. This is followed by symptoms of acidosis, dehydration and shock. Later the patient becomes unconscious. The diagnosis is confirmed by the detection of sugar and acetone in urine with high blood sugar level.

Management—

1. Hospitalisation of the patient, and immediate blood sugar estimation, along with examination of urine for sugar and acetone.
2. I.V. fluids and electrolytes.
3. Soluble insulin injection at 6 hourly intervals. SI may be given with the drip in desperate cases.
4. Examination of urine for sugar and acetone before giving each injection of insulin, as far as practicable.

5. Searching for any possible source of infection including urinary tract and subsequent treatment with suitable antibiotic.
6. Treatment of shock by analeptics, warmth, etc. Heat should be applied with care as severe burns may occur.
7. Stomach wash. There is gross dilatation and ileus leading to cardiac embarrassment.
8. Enema.
9. Potassium chloride—2 grammes 6 hourly by mouth when the patient is on way to recovery.

HYPOGLYCAEMIA :

It must be distinguished from ketosis otherwise disastrous consequences are apt to be encountered. This is characterised by tremor, palpitation, sweating and anxiety. Blood sugar is low and urine usually does not reduce Benedict's solution. Later on such patients may also become unconscious. Treatment consists in giving a carbohydrate meal orally or parenterally and/or adrenaline injection. The condition is serious and if left untreated for long may prove fatal, on account of irreversible changes occurring in the central nervous system.

NEUROPATHY :

Treatment demands adequate control of diabetes along with administration of various B vitamins especially B_1 and B_{12}. Analgesics and local treatment may afford some relief. In extreme cases neurosurgical relief may be considered.

TRIOPATHY :

This is a progressive vascular lesion characterised by retinopathy, proteinuria (nephropathy) and neuropathy. In late stages hypertension and nitrogen retention supervene. Prognosis is unfavourable. In cases without nitrogen retention, liberal amount of protein may be given to replenish the urinary loss. Salt should be restricted if there is oedema. Vitamins C, K. etc. may also be used. When nitrogen retention has occurred, protein should be restricted and extra carbohydrate should be given. There is nothing available at the moment which can even modify the course of the disease.

INFECTIONS (INCLUDING TUBERCULOSIS) :

It should be promptly treated with suitable antibiotics and/or chemotherapeutic agent in addition to added dose of insulin. Soluble insulin should be used in severe infections and the possibility of insulin resistance and ketosis must also be borne in mind. If the insulin requirement of an otherwise normal diabetic individual tends to rise without any apparent reason the possibility of pulmonary tuberculosis has to be thought of. Both diabetes and tuberculosis are difficult to treat and careful management is essential. The ultimate prognosis has immensely improved with modern therapeutic agents.

GANGRENE :

This is essentially a surgical problem. Prevention is most important. Diabetics should take proper care of their feet. Any breach of even skin surface should be taken seriously. Corns must be pared carefully. Ill-fitting shoes are best avoided. Fungal infection at the clefts of the toes is to be attended to with care. Heat should be applied carefully. In case of threatened gangrene, immediate surgical attention is necessary.

ANNEXURE I—SHOWING A SPECIMEN DIET

6 A.M.	...	Tea or a lemon juice drink.
7 A.M.	...	Bread—2 oz. with butter and 1 egg.
		(Bread may be replaced by suji (semolina), muri (puffed rice), chattu or chira (parched rice) and butter by ghee or oil. Milk about 4 oz. or chhana 2 oz. may be taken in place of one egg.
		Tea or coffee.
9 A.M.	...	Rice or atta—2 oz. Little dál may be added.
		Fish—4 oz.
		Green vegetables—8 oz. or more.
		Curds.
1 to 1-30 P.M.	...	Salads (cucumber, tomato etc.) or one suitable fruit.
		Bread 1 oz. with butter.
		Tea
5-30 P.M.	...	Biscuits—1 oz. or some variety from 7 A.M.
		Tea.
8-30 P.M.	...	Clear soup, if desired.
		Flour or bread—2 oz.
		Fish or meat—4 oz.
		Green vegetables—8 oz. or more.
		Tea or coffee, if desired.

Remarks

(a) The above are approximate measures.
(b) Saccharine may be used to sweeten.
(c) Vitamin supplements may be added.
(d) Extra milk or chhana (casein) is added in place of fish or meat in case of vegetarians.
(e) Daily allowances :
(i) Butter, ghee or oil—1 oz. (in addition to cooking fat, excess of which should be avoided.)
(ii) Milk—½ seer. (Tea, coffee, curds are to be prepared from this amount). Extra 8 oz. (½ seer) of milk would add 144 calories (P. 7 g., F. 8 g. and C. 11 g.) to the above diet.

ANNEXURE II—SHOWING EXCHANGE VALUES

To increase or decrease the value of the diet, additions or deductions may be made as shown below:

	Weight in oz.	Carbohydrate (g.)	Protein (g.)	Fat (g.)	Calories
Bread ...	1	15	3	0·5	72
Fish ...	3	—	18	1·5	85
Meat (goat) ...	2	—	8·4	6·2	89
Butter ...	½	—	—	8·6	77
Milk ...	4	5·6	3·6	4	72

Exchanges (approx.) for 1 oz. of bread—Rice, muri, khai, chira, atta, maida or suji (1 oz.), mashed potato (one rounded tablespoonful), cereal pudding without sugar (4 level tablespoonfuls), cornflake (¾ oz.), porridge (3 tablespoonfuls), biscuits (1 oz.), one large orange or other 10 per cent fruit, one small apple or other 15 per cent fruit.

Exchanges for 1 oz. of meat—Chicken 1½ oz., liver or kidney 1½ oz., cheese ¾ oz., egg 1, fish 1½ oz., chhana 2 oz.

Exchanges for vegetables—(a) Group I (up to 3 per cent carbohydrate). Lettuce, celery, spinach, cabbage, cauliflower, French beans, asparagus, radish, cucumber, vegetable marrow, tomato, brinjal, gourd bottle (lau), gourd, white (chaul kumro), club gourd (dhundhul), sponge gourd (jhinga), gourd bitter (karela, ucchay), "snake" gourd (chichinga), mocha (plaintain flower), green mango, green papaya, palbal (patol), palong sag, thor, sajina danta.

(b) Group II (3 to 6 per cent carbohydrate)—Turnips, onions, carrots.

(c) Group III (10 per cent carbohydrate)—Beetroot, parsnip, fresh peas.

Group IV (20 per cent carbohydrate)—Not to be taken without permission—Potato, cooked dried peas, beans, lentils.

Exchanges for fruits—(i) Carbohydrate 7½ per cent (4½ oz.)—Grapefruit, strawberries, blackberries, melon, pomelo (batabi lebu).

(ii) Carbohydrate 10 per cent (3½ oz.)—Orange, peach, pineapple, papaya.

(iii) Carbohydrate 15 per cent (2¼ oz.)—Apple, pear, apricots (dried), grapes.

(iv) Carbohydrate 20 per cent (1¼ oz.)—Bananas, mango (ripe), jack fruit.

Exchanges for nuts (1 oz.)

	Protein (g.)	Fat (g.)	Carbohydrate (g.)	Calories.
(i) Almond ...	5·9	16·7	3·0	186
(ii) Cashewnut ...	6·0	13·3	6·3	169
(iii) Coconut ...	1·4	11·8	3·7	126
(iv) Groundnut ...	7·6	11·3	5·8	156
(v) Groundnut (roasted)	8·9	11·3	5·5	159
(vi) Pesta ...	5·6	15·1	4·6	178
(vii) Walnut (Akhrot) ...	4·4	18·3	3·1	195

CASE NOTE

SUDDEN BLINDNESS FOLLOWING INJECTIONS OF DIETHYLAMINE ACETARSOL SOLUTION

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AND

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A case of sudden blindness following injections of diethylamine acetarsol solution is presented. No such case appears to have been reported in the literature. In addition to vasodilators and BAL, ACTH has been used. There was very little improvement with such treatment. However, in course of 10 weeks since the onset of blindness, she was found to have made partial recovery of her vision.

CASE REPORT

A Hindu middle class widow, 65 years, had an attack of bronchitis and asthma on 15-1-57. She was treated with injections of procaine penicillin and an asthma mixture. She improved in the course of one week but breathlessness did not disappear. She had then four injections of diethylamine acetarsol solution 23·6 per cent 3 c.c. on alternate days, the last injection having been given on 5-2-57. On waking from sleep on 7-2-57, she found herself completely blind. She was admitted in the hospital on 13-2-57 at 2 P.M. for the blindness.

On admission, she had no fever, no headache or any other complaint excepting complete loss of vision in both eyes.

The examination of the eyes showed: Wide dilatation of the pupils with no reaction to light; tension—normal; early cataract in the left eye. Ophthalmoscopic examination showed: discs pale and somewhat waxy in colour and retinae pale; arteries—very thin; veins—normal; a few very small yellowish white exudate-like patches near the macular region. P.L. and P.R. absent.

Examination of other systems did not reveal any abnormality.

Laboratory investigations—

Blood: Hb.—10·9 g. per cent, W.B.C.—8,600 per c.mm. with polymorphs 70 per cent, lympocytes 18 per cent, monocytes 1 per cent and eosinophils 11 per cent. W.B. and Kahn test of blood and C.S.F.—negative. Blood urea—28 mg. per cent; blood N.P.N.—27 mg. per cent.

Urine, stool and C.S.F. examination reports were non-contributory.

X-ray of the skull—No abnormality present.

Treatment and progress—Immediately on her admission, the patient was treated with :

(1) 2-benzyl-imidazoline hydrochloride—10 mg. in 1 c.c. given I.M. every 6 hours for 4 days.

(2) Aneurin 50 mg. and nicotinic acid 100 mg. in 25 c.c. of 25 per cent glucose given I.V. slowly twice daily for 4 days.

(3) Acetyl-choline—1 c.c. containing 0·1 g. given by retrobulbar injection in each eye on 14-2-57.

(4) BAL—1 ampoule I.M. twice daily for 2 days and then once daily for another 2 days.

Seventy-two hours passed since her admission but no improvement was recorded. ACTH was then started. 7·5 mg. was administered I.M. every 6 hours for 10 days. From the 3rd day of ACTH injections, the patient said that she could faintly see the light but even this slight improvement was doubtful. The patient left the hospital on 27-2-57 of her own accord with practically no improvement in her vision.

Subsequent follow-up revealed that in the course of 8 weeks after she left the hospital, she gradually got back part of her vission and was capable of moving about in the house without the help of anybody and doing ordinary household work. The patient, however, declined to come to the hospital for detailed studies regarding acuity of vision, field of vision, etc.

Discussion

Sudden loss of vision in both the eyes without pain and the typical appearance of the fundus suggested the immediate cause of blindness to be spasm of the central arteries of the retinae. The patient had four injections of diethylamine acetarsol solution (23·6 per cent, 3 c.c.) on alternate days, the last injection preceding the onset of blindness by 2 days. Hence a strong suspicion is roused that the spasm of the central arteries of the retinae had been brought about by injections of diethylamine acetarsol solution.

Toxic amblyopia causing temporary or complete blindness is known to be caused by a number of exogenous poisons. Most of them act by causing degeneration of retinal ganglion cells or the nerve fibres. There are, however, few poisons which cause blindness by spasm of the central arteries of the retinae and anoxaemia of its ganglion cells. Quinine is particularly notorious in this respect. Generally this catastrophe has followed large doses of quinine taken by mouth for abortion or given by injection with urethane as a sclerosing agent though in sensitive individuals as small a dose as 1 grain of quinine may cause transient disturbance of vision. Aspidium felix mas is another such poison which can cause spasm of the central arteries of the retinae.

In differential diagnosis, a very careful enquiry was made and it was determined for certain that the patient had not taken quinine by mouth or by injection immediately before the onset of blindness. Hysterical blindness was excluded by age and the nature of the patient and from the appearance of the fundus. Retrobulbar neuritis would not have caused the changes noted in the retinae. The W.R. and Kahn test of blood and C.S. fluid were negative. The uraemic amblyopia was excluded by blood biochemistry which did not show any rise in urea or non-protein nitrogen.

The patient was admitted very late, six days after the onset of blindness. The treatment was immediately started with vasodilators—2-benzyl-imidazoline hydrochloride, aneurin (vitamin B_1 given I.V. has a vasodilator effect) and nicotinic acid and the retrobulbar injection of acetylcholine. As arsenic was considered to be the toxic agent concerned, BAL was also administered.

As no improvement was noticed in 3 days, ACTH was started and given for 10 days. This also did not cause any improvement in the situation.

As this case has much in common with quinine amblyopia it may be noted that Glick and Mumford (1955) reported a case of recovery from quinine amblyopia where in addition to vasodilators and vitamins of B group, bilateral stellate ganglion blocking was done. Another case of quinine amblyopia was reported by Vaidyanathan and Vasudeva (1956). In this case use of ACTH appears to have hastened the recovery when after initial response with vasodilators the progress came to a standstill.

In the course of 8 weeks following her discharge from hospital the patient got back some vision. It is worth mentioning in this connection that in quinine amblyopia, some improvement in vision may take place several months after its onset (Vaidyanathan and Vasudev, 1956).

Summary

A case of sudden complete blindness due to spasm of the central arteries of the retinae is presented. This spasm appears in all probability to have been caused by injections of diethylamine acetarsol solution.

The patient came up for treatment 6 days after the onset of blindness. Vasodilators, BAL and ACTH did not cause any improvement in the vision. In course of subsequent 8 weeks however, without much treatment, the patient was found to have regained part of her vision.

Acknowledgment

I express my thanks to Dr. S. Roy, Eye Specialist, for kindly examining this case and giving his valuable opinion.

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JOURNAL OF THE
INDIAN MEDICAL ASSOCIATION

CALCUTTA, MAY 1, 1958

HISTAMINE

The term 'autopharmacology' was introduced[1] to denote a group of pharmacologically active substances which are present in an inactive form bound to the tissue and are liberated at times in a free form to exert their clinical effects. One of the most important members of this group is histamine. It is present in the different tissues of the body from which it may be liberated at certain times. The main action of histamine is on the smooth muscles, blood vessels including the capillaries and on the gastric secretion. On the basis of these actions histamine has been incriminated to take part in certain physiopathological processes.

The similarity between the anaphylactic shock and the histamine shock produced in guinea pig was pointed out in 1910[2]. Many showed previously that anaphylaxis is of the nature of an antigen-antibody reaction in which the contact of the antigen with the serum of the sensitised animal liberates a toxic product anaphylatoxin which is responsible for the manifestation of this serious condition. This came to be known as the humoral hypothesis of anaphylaxis[3]. But this view was disputed[4, 5] and it was shown that the contact of the antigen with the sensitised cells (washed free from the serum containing circulating antibody) will elicit a contraction of the smooth muscle of the intestine. The cellular theory of anaphylaxis put forward suggests that the sensitising antibodies are fixed to the cells of the sensitised tissue and the contact of the antigen with these cells liberates some toxic product which was suspected to be histamine. It was subsequently proved that histamine is liberated when antigen is brought in contact with the sensitised tissue[6]. However it is now possible to bridge the gap between these two opposite views for it has been shown that anaphylatoxin when incubated with normal serum liberates histamine[7]. Histamine therefore appears to be the final common mediator in the conditions like anaphylactic shock.

Attention was drawn to the similarity between the anaphylaxis and the serum sickness and other allergic diseases in man[8]. Fortunately however man becomes sensitised to foreign protein much less frequently than guinea pig[9]. The sensitising diseases in man may show diverse manifestations from the mild symptom of urticaria to the alarming condition like anaphylactic shock after the injection of antiserum.

Although the blood histamine level in normal individuals varies within a narrow range it shows a great deal of fluctuations in allergic persons[10]. It was shown that the blood of allergic patients when incubated with the antigen to which they are sensitive liberate histamine[11]. Bronchial muscles of the asthmatic patients contract due to the liberation of histamine when the sensitising antigen is brought in contact with them[12]. This is a very strong evidence to support the role of histamine in allergy. But recently fresh facts have been brought to light which gives rise to the suspicion. It was observed[12] that while anti-histaminics could inhibit completely the contraction of the bronchial muscle due to histamine, similar contraction of the muscle could only be partially stopped when it is brought in contact with the antigen. It thus appears likely that some substance or substances other than histamine are also discharged at the site. The failure of antihistaminics to relieve the asthmatic attacks is another evidence in this line, although this anomaly has been tried[13] to be explained by postulating that intrinsic histamine, liberated at the site of antigen-antibody contact, reaches the target organ before the antihistaminics could be brought to that place by the blood stream.

The property of histamine to increase the permeability of the capillaries is well known. Based on the similarity between the "triple response" and the response of the skin of sensitive individuals to trauma or in urticaria, it was postu-

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lated[14] that such reactions are mediated by some histamine like substances called H substance. In the light of recent work "the identity of H-substance with histamine is reasonably certain"[15]. Increased capillary permeability at the site of acute inflammation is due to a substance, leukotaxin, liberated at the site of injury[16]. The component of leukotaxin responsible for the escape of plasma, rich in protein, is histamine. Evidences have been brought forth to suggest that the active substance is probably some protein rather than histamine although histamine is also discharged at the site[17, 18].

The relation between the blood histamine and the eosinophils is another controversial point which is not yet solved. It was once thought that the eosinophils carry most of the blood histamine but the evidence is conflicting. There is a better correlation between the blood histamine level and the basophil count than between it and the eosinophil count.[19] The eosinophils do not manufacture the histamine but carry it from the site of manufacture which may be in the bone marrow or in the other places where there is allergic inflammation[20]. Why should they carry the major fraction of histamine in the blood is as yet uncertain. The suggestion is that they destroy or inactivate it.

The action of histamine on the gastric mucosa has been proved to be due to its direct action on the oxyntic cells[21]. Its action on the gastric secretion is similar to gastrin with which it was once thought to be identical, although this view was subsequently proved to be wrong[22].

Elsewhere in this Journal is published an article wherein the authors report that the blood histamine level in peptic ulcer patients in the active stage of the disease is within the normal range and that there is no correlation between the blood histamine level and the fasting acidity of the gastric juice[23]. It appears to be thus doubtful if histamine has any role in the pathogenesis of peptic ulcer in spite of the large volume of work that has been done by the experimental pathologists on this line.

Histamine exists in the body in two different forms—free and bound. The free form is pharmacologically active and is highly diffusible. Obviously this form cannot exist in large concentration in the tissues. Most of the histamine in the tissues exists as an inactive compound bound to the tissues although the exact form in which it is present in the tissues is not definitely known. Free histamine is liberated from the bound form under various conditions, e.g., anaphylactic shock, asthma etc. Certain drugs can also liberate histamine in the free form from the bound fraction. These are the histamine liberators and include such diverse substances like trypsin, peptone, stilbamidine, the most potent one being the synthetic compound 48/80. Though the exact mechanism of histamine release is as yet uncertain various theories like tissue injury resulting in the liberation of this amine[24], proteolytic enzymes discharging histamine from the bound form[25] and the theory that these compounds displace histamine from the tissues because of their similarity in the side chain[26] have been suggested. After the bound histamine is discharged from the tissue it is slowly reformed although the mechanism involved in this reformation is not clear. The free histamine liberated from the tissue does not remain as such for long as it is soon converted into some inactive form. This inactivation is brought by the enzyme histaminase present in the different tissues. Liver also takes some part in the inactivation for it acetylates it and thus renders it innocuous. Most of the histamine is excreted in urine in the acetylated form.

It would thus appear to be evident that inspite of the large volume of work done on the role of histamine in the various pathological processes we are far from the solution of the problem of the exact role of this interesting amine in the body.

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CURRENT TOPIC

DR. S. C. SEN'S TOUR FOR FUNDS FOR I.M.A. BUILDING

Dr. S. C. Sen (New Delhi) undertook a second tour with a view to collect funds for the proposed building of the I.M.A. (Central office) at New Delhi. The tour covered Banaras, Patna, Calcutta, Allahabad, Kanpur, Lucknow and Dehradun.

The following is the full text of the Report submitted by him to the President and Members of the Working Committee of the Indian Medical Association :

I left Delhi on the 27th January by Air for Banaras. I was cordially received at the Airport by the President and other Officers of the Banaras Branch. The same afternoon, I addressed a meeting of the Banaras Branch which was also attended by Dr. H. N. Shivapuri, President of the U.P. State Branch. This meeting was held in the new premises of the Banaras Branch. I called on Capt. S. K. Chaudhuri, Past President of the Indian Medical Association. I was treated as the guest of the Banaras Branch and was put up at the best hotel in the town.

On the 28th January, I left Banaras by Air for Patna and was cordially received by Dr. Tripathi, the President of the Patna Branch, the Honorary Secretary and our friend Dr. S. Samaddar. I was the guest of the Patna Branch at the local Club. I called on various colleagues, addressed a meeting of the Local Branch and in the evening, I was treated to dinner at the new premises of the Patna Branch. On the 29th afternoon, I left for Calcutta.

I stayed in Calcutta till the evening of 5th February. At Calcutta, the President and Honorary Secretary of the Bengal State Branch, the President and Honorary Secretary of the Calcutta Branch and Dr. A. C. Ukil, the Past President were very helpful in chalking out programmes for me. I addressed a meeting of the Executive Committee of the Calcutta Branch. In company with the above friends, I called on about 25 doctors and got promises of liberal donations to the Building Fund. For unavoidable reasons, the programme arranged for me to visit branches at Burdwan and Asansol could not be carried out.

I left Calcutta on the 5th night by train and arrived at Allahabad on the 6th morning. I was received at the station by Dr. S. K. Mukherjee, the President of Allahabad Branch and Dr. Anilesh Mukherjee, the Hony. Secretary of the Allahabad Branch. Dr. H. N. Shivapuri, the President of the U. P. State Branch, had also come down to Allahabad to meet me. I addressed a meeting of the Allahabad Branch in the afternoon and then left for Kanpur soon afterwards by train.

I addressed a meeting at Kanpur on the afternoon of 8th February. Dr. H. N. Shivapuri, President and Dr. M. M. S. Siddhu, Hony. Secretary of the U. P. State Branch had specially come down from Lucknow for the purpose.

On the 10th evening I reached Lucknow. I was received at the station by Dr. B. Sinha, Dr. H. N. Shivapuri and others. I stayed there for two days as the house guest of Dr. B. N. Sinha, President of the Lucknow Branch. I addressed a meeting of the Lucknow Branch on the 11th afternoon, called on personally some of the important members of that branch and left Lucknow on the 12th night by train.

Everywhere I visited, I was received with cordiality and affection. All the office-bearers of various branches promised to do their best for collection for the Building Fund. I conveyed my grateful thanks to all those colleagues who helped me in every possible way to make my tour pleasant and successful.

The net result of my tour may be summed up as follows :

(1) *Banaras.* Dr. Nomani, the President of the Banaras Branch promised a donation of Rs. 1,000/- and assured me that he would make serious drive for collection from other members.

(2) *Patna.* At Patna, I was promised donations of Rs. 1,000/- each from about 10 members of the Patna Branch and I was assured by Dr. Tripathi, the President of the Patna Branch and his colleagues like Dr. Ghosal, Dr. S. Samaddar and others that they would be active in the matter.

(3) *Calcutta.* At Calcutta, I was able to personally meet about 26 prominent members of the Calcutta Branch. Dr. N. R. Sengupta who had already paid Rs. 500/-, paid a further donation of Rs. 1,000/-.

Dr. B. P. Trivedi who had already paid Rs. 100/-, paid a further donation of Rs. 900/-.

Dr. N. K. Munshi who had already paid Rs. 100/-, paid a further donation of Rs. 400/- and he would pay the second instalment of Rs. 500/- later.

Besides the above, I got promises of donations of Rs. 1,000/- each from about a dozen colleagues. The list is with Dr. S. Dutt, the Hony. Secretary of the Bengal State Branch.

In addition to meeting colleagues, I was able to contact the Imperial Chemical Industries, Phillips (India) Ltd., M/s. Brahmachari Ltd., Albert David Ltd., Bengal Chemical & Pharmaceutical Works Ltd., Standard Pharmaceutical Works Ltd. and East India Pharmaceutical Works Ltd., for donations. These concerns will have to be written to, again.

(4) *Allahabad.* At Allahabad, I was assured by the President and the Hony. Secretary of the Branch that they would contribute at least @ Rs 50/- per member as soon as possible.

(5) *Kanpur.* At Kanpur, I got promises of Rs. 1,000/- each from 4 members and I was assured by the President and other members that they would be very active in collecting funds.

(6) *Lucknow.* A Lucknow, I was able to personally contact about 10 important colleagues and most of them promised to give a donation of Rs. 1,000/- each, and I was assured by Drs. Shivapuri, Siddhu and Gupta that they would do their best in this connection.

(7) *Dehra Dun.* I visited Dehra Dun and addressed the members of the branch on the 3rd of March. On the spot, donations amounting to Rs. 200/- was promised by several members as first instalment. In addition, the branch as a whole had agreed to send a donation of Rs. 101/-. I was assured that serious attempts will be

made to collect the promised amounts and further amounts every month.

As I am going abroad and am not likely to return to India before about six months, I would venture to submit the following suggestions for consideration by the Working Committee :

(1) We make a serious attempt to lay Foundation Stone of the Building towards the end of September 1958 and we invite some very distinguished persons to do the same.

(2) For that occasion, we publish a special Brochure giving a short history of the Indian Medical Association, its objectives and its achievements so far. For that Brochure, we should invite Pharmaceutical and other industries interested in the medical and public health fields and in the Indian Medical Association to put in simple advertisements (without mentioning details of their products) and that there be a minimum and uniform charge of Rs. 2,000/- per page. If this is done, we may be able to collect anything from Rs. 50,000/- to Rs. 1,00,000/- by this means.

(3) Our Honorary Architects have been advised to speed up the preparation of the plans and submit them to the authorities for sanction as soon as possible. We have suggested to them that the plans may be flexible so that according to funds available, additions and extensions can be made from time to time. We should aim to complete the whole project if possible, before the All-India Medical Conference meets in Delhi in 1960.

(4) It is my suggestion that in the Hall and passages of our Building we should put up on the walls at least 20 show cases which can be rented out to various pharmaceutical concerns for the display of their latest products.

NOTES AND NEWS

World Health Day

The World Health Day which coincided with the 10th anniversary of the World Health Organization was observed on the 7th April.

Mr. M. G. Candau, of Brazil, the Director-General of W.H.O. said in a special anniversary message from Geneva in this connection that the W.H.O. has now become a "trusted instrument in the service of all countries."

Ten years ago this specialised agency of the U.N. was merely "a vision seen only by a few farsighted men," he said. It now has more than 500 professors, doctors, nurses and other health personnel in the field and is assisting some 700 health projects in 120 countries.

On April 7, 1948, the Constitution of W.H.O. was ratified by 26 nations. Today, there are 88 member nations and the annual budget has risen from less than five million dollars to $13,500,000.

Massive attacks are under way against diseases like malaria and yaws which affect millions of people. Training schools are turning out thousands of new health workers each.

Laboratories and scientific institutes in almost every country have become linked through W.H.O. in a huge network to advance research exchange information and develop new techniques for fighting disease and building health.

Health workers throughout the world are pooling their knowledge and experience and making it possible for people in remote and underdeveloped areas to benefit from the latest advances of medical science.

Dr. Rajendra Prasad, President of India, has issued the following statement on the occasion :

"On the occasion of its 10th anniversary, which is being celebrated as World Health Day, I send my greetings and best wishes to the World Health Organisation. The W.H.O. is one of those specialised agencies of the United Nations which, being above controversy and any kind of difference of opinion, have been doing real constructive work for the happiness of mankind. Its teams of medical experts have been working in varous countries for the eradication of disease and removal of suffering, an undertaking in which, I am told, they have met with encouraging success. Fighting disease and ill health wherever they be, is a cause worthy of W.H.O. and no less so of the great organisation under whose auspices it operates. Let us hope its efforts in providing health services, particularly in needy and backward areas, will go a long way in raising public health standards. I wish Godspeed to the organisers of the World Health Day."

Tranquillising Drugs

Attention of the Expert Committee on Addiction-Producing Drugs of the World Health Organisation was drawn to the very rapidly increasing use of those agents which are being described as 'tranquillisers' and 'ataraxics'. The Committee believed that these substances, diverse in their chemical characteristics but similar in their central sedative action, must be classed as potentially habit-forming. In addition, some evidence has been presented that, under conditions of excessive use, a characteristic withdrawal syndrome can appear—"In this respect, the tranquillisers and ataraxics resemble the barbiturates and should be subject to national control. Their continuing clinical use should be followed very closely for an eventual evaluation of their relation to public safety."

The International Professional Union of Gynaecologists and Obstetricians

The International Professional Union of Gynaecologists and Obstetricians will have its next Congress at Brussels (Belgium) on July 18 and 19, 1958, under the presidency of Dr. Luque.

The delegation fee has been fixed at 500 Belgian francs. Correspondence may be addressed to the secretary-general of the Union Dr. J. Courtois, 1 Rue Racine, St—Germain-en-Laye (S.-&-o), France.

World Congress on Fertility and Sterility

The Third World Congress on Fertility and Sterility, sponsored by the International Fertility Association, will

be held in Amsterdam, Holland, from June 7 to 13, 1959. The general outlines of the sections of the programme will be as follows: 1. Female sterility (Physiology of reproduction, pathology, endocrinology, clinical problems, treatment). 2. Male sterility (Physiology of reproduction, pathology, endocrinology, clinical problems, treatment). 3. Basic research and/or animal reproduction. 4. Psycho-sexual problems.

Machine for Tissue Examination

Dr. John R. Heller, director of the U.S. National Cancer Institute, recently announced a new machine that could examine possible cancerous tissue in about one five-thousandth of a second or tens of thousands of times faster than a technician using conventional methods.

Known as the Cytoanalyser, its examining "eye" is a special microscope. When a cell sample appears under the lens, an electronic scanning device goes into action. The device operates something like the scanner of a television camera and translates images of the cells into electric currents. A recorder indicates the computer's decision—"normal" or "suspicions"—and doctors can then concentrate on examinations of the "suspicious" samples.

Expert Committees to Advise on Smallpox and Cholera

The Union Health Ministry has recommended to State Governments the constitution of expert committees to investigate the causes of the recent rise in the incidence of smallpox and cholera and to suggest short and long term measures for their control.

At the same time Government of India have requested the Indian Council of Medical Research also to set up an expert committee at the Centre for a similar purpose. There will be close collaboration between the committees set up by the State Governments and the one set up by the Indian Council of Medical Research.

The Union Health Ministry has recommneded three measures in regard to smallpox.

Firstly, they should consider whether the present system of registration of births in rural areas is satisfactory as non-registration of all live births results in the escape of a considerable number of primary vaccinations.

Secondly, they should consider the introduction of compulsory revaccination, the need for which was recommended by the Central Council of Health in December 1956. As an emergency measure State Governments could promulgate the emergency smallpox regulations under the Epidemic Diseases Act 1897, making vaccination compulsory, or under any other suitable legislation in force in the State.

Thirdly, the State Governments should investigate the complaint that smallpox vaccination lymph manufactured in some Institutes does not fulfil the required standards of potency and that supplies are irregular, interfering with the satisfactory working of the vaccination programme.

Regarding cholera, the Union Health Ministry has suggested the following precautionary measures.

Firstly, stock-piling of necessary anti-cholera drugs, disinfectants and water sterilising agents like bleaching powder.

Secondly, regular disinfection of all sources of water supply three weeks prior to the usual cholera season and thereafter at regular intervals.

Thirdly, strict control over sanitation in fairs and festivals and compulsory inoculation of pilgrims attending.

Fourthly, all municipalities and local bodies should be instructed to take particular care of sanitation, food control etc. during this period.

Glaxo Scholarships for Research in Paediatrics

The Governing Council of the Association of Paediatricians of India through which the award has been granted has selected Dr. (Mrs.) P. E. Bharucha, Hon. Assistant Paediatrician at the Bai Jerbai Wadia Hospital and Dr. V. D. Arora, Hon. Assistant Paediatrician at the Bombay Hospital and the Nair Hospital as recipients of the scholarships.

International Leprology Congress

The 7th International Congress of Leprology will be held in New Delhi for a week, from November 10.

Donation of Drugs

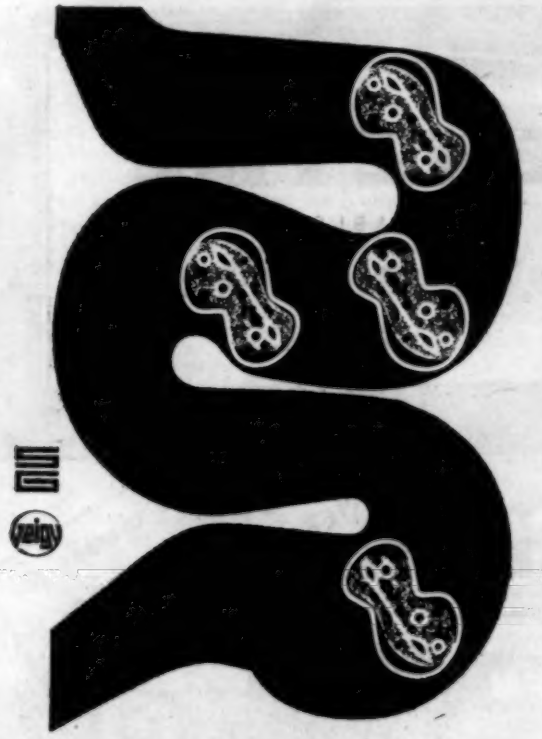
The Lederle Laboratories, New York, have donated antibiotics and other drugs valued at Rs. 10,000 to two hospitals in Bombay State—the Sir Takhtasinhji Hospital in Bhabnagar and the Tuberculosis Hospital in Songadh.

The donations came when India's Ambassador in Washington, Mr. G. L. Mehta, visited the Lederle Laboratories at Pearl River (New York) on March 13 last. Mr. Mehta named the two hospitals to share the donation in equal proportion.

REVIEWS

Lupus Nephritis—By Robert C. Muehrcke, M.S., M.D., Robert M. Kark, F.R.C.P., F.A.C.P., Conrad L. Pirni, M.D. and Victor R. Pollack, M.B., M.R.C.P.E. Board bound, 10¼ × 7 inches, 145 pages. The Williams & Wilkins Company, Baltimore, U.S.A., 1957.

The term *Lupus Nephritis* very aptly describes the involvement of the kidney in Systemic Lupus Erythematosus (SLE). Although perhaps inaccurate in a literal descriptive meaning, the term nevertheless serves to focus attention on a specific disease of the kidney which is at present the major complication and the most pressing problem in patients ill with SLE. It is of course true that with the introduction and liberal use of antibiotics, blood transfusions, balanced water and electrolyte therapy and, corticotrophin and steroid hormone therapy the lives of those afflicted with SLE are nowadays much prolonged than it was possible even 20 years ago ; but these patients, often ultimately succumb to a progressive renal failure. This book outlines the observations on 33 patients studied intensively during



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two years, supplemented by a retrospective study of 21 cases collected from postmortem material from the Department on Pathology. This study was supported by grants from several sources, and the use of serial percutaneous renal biopsies enabled the observers to follow the histological evolution of kidney involvement. The observations made during the study, and the conclusions drawn therefrom, have been very clearly depicted in this exposition. A bibliography of 307 references indicates the extensive survey undertaken by the authors and helps the reader to go for further reading on the subject.

Transactions of The Association of Life Insurance Medical Directors of America, Sixtyfifth Annual General Meeting—Editor, James R. Gudger, M.D., vol. XL. Board bound, 9×6 inches, 274 pages. Published from the Association Office, P.O. Box 594, Newark, N.J., U.S.A.

This book contains the transactions, in the form of papers presented with discussions on them, as well as the symposia held during the sixty-fifth annual meeting of the Association which started on October 23, 1956 at New Orleans, Louisiana, U.S.A. The papers presented, and the discussions thereon have been of a high scientific order and these should prove of great help to physicians in general, and doctors who have to deal with the medical examination and assessment of life insurance cases, in particular. The focus of attention has naturally been directed to cardiovascular conditions; there is also an able exposition of cancer—the challenger, as it concerns life insurance work.

Dermatology and Venereology for Nurses—By Dr. P. N. Behl, M.B.B.S., M.R.C.P. (EDIN.); with forewords by Col. Amir Chand, F.R.C.P. and Miss Margaretta Craig. Published June 1957 by Pitambar Book Depot, 294, Chandni Chowk, Delhi, India. Board bound, 7¼×5¼ inches, 125 pages. Price Rs. 10/-.

This is a small handbook, containing informative and illustrative discussions on common conditions of skin and venereal diseases seen in this country. Written primarily for nurses, this book is likely to be useful to the medical student and the busy general practitioner. Sixty-eight art plates have been used to illustrate the text; with better reproduction these could have been much more useful to the readers who do not often have access to better and bigger books in libraries.

Encyclopaedia of American Associations (A Guide to the Trade, Business, Professional, Labour, Scientific, Educational, Fraternal and Social organisations of the United States). First edition, 1956. Board bound 11½"×9", 306 pages. Gale Research Company. 424 Book Tower, Detroit, Michigan, U.S.A. Price $15.00.

Associations of all types are becoming increasingly important in America today. Pronounced long ago, it is perhaps quite apt even today that "wherever at the head of some new undertaking you see the government in France or a man of rank in England, in the United States you will be sure to find an association." This first edition of the Encyclopaedia has been designed as a reference book for librarians, business men, educators, government officials and research workers. The associations listed in this book have been conveniently arranged in six sections. There is a very comprehensive and cross-indexed "finding guide" at the end of these six regular sections of grouping with brief descriptive listing of a very large number of associations concerning a very wide variety of subjects. While there may have been omissions here and there, it must be admitted that the publishers have done a wonderful job of such a laborious undertaking. Business reply cards at the end of the book is expected to ensure a better and fuller compilation of a subsequent edition or even interim appendices. This is a really very helpful book.

Einführung in die innere Medizin—Von. Prof. Dr. H. J. Wolf, Bielefeld/Göttingen. 6., erweiterte Auflage. 1957. XX, 700 Seiten, 73 teils farbige Abbildungen, Gr.-8°, Ganzleinen DM 39.80.

Introduction to Internal Medicine—By Dr. H. J. Wolf, Additional Professor of Internal Medicine, University of Göttingen, Director, Municipal Hospital, Bielefeld and Head, Department of Medicine (in German). 6th enlarged ed.; XX, 700 pp., 73 partly coloured illustr., George Thieme, Stuttgart, 1957. DM 39.80.

The fact that this book, first published in 1941, has reached its 6th edition is full proof of its usefulness. The double position of the author, gives this work a broad basis and a practical bias. It is just what the practitioner and the medical student require—detailed enough for information on all questions confronting the non-specialist, and free from purely theoretical, all-too-scientific ballast. Nevertheless, there is a very adequate physiological and pathophysiological introduction to almost every one of the 16 chapters, pathological anatomy being purposely reduced to a minimum. A special and welcome feature of this book is the emphasis on diagnostic methods. There are detailed discussions of percussion and auscultation with all the time-honoured signs of the chest diseases, sadly missing in many of our textbooks. Equally well described are essential methods of cardiovascular investigation, including electro- and phonocardiogram as introduction to a very informative chapter on the clinic of heart and vascular diseases. The section on haematology gives all the necessary information, although the importance of prednisone in haemorrhagic diseases would deserve more recognition. Methods of gastro-intestinal investigation are fully presented; ulcer treatment, including ganglion blockers, as well as the management of diarrhoeas are clearly described, although the dysenteries are to be found 270 pages later with the infectious diseases; yatren and resochin are preferred to emetine in amoebic dysentery. Liver function tests could be treated in more detail; the advantage of laparoscopy over blind biopsy is mentioned. Crude liver extract and prednisone as treatment of choice for cirrhosis may be endorsed, while recommendation of ion exchange resins and diamox in hepatic ascites seems risky. The chapter on diabetes deserves praise. Diseases of endocrine glands are adequately

dealt with. Fifty-four pages are devoted to diseases of the kidney and urinary tract; they contain a balanced survey of renal physiology, clinical pathology and clinic; although therapeutic advice is mostly detailed and satisfactory, only ACTH and not prednisone has been advised for nephrosis. The chapter on diseases of muscles, bones and joints contain interesting discussions of the immunologic processes underlying various rheumatic conditions; the term "collagen diseases" has not been used. Infectious diseases fill almost 10 pages containing much valuable advice, particularly also on nursing care of the typhoid patient. The Salk vaccine has been just mentioned, while nystatin has not yet been included among the fungicides. Shorter chapters deal with vitamins, parasitic diseases, effects of poisons and, finally, with chemotherapy of cancer; the last-named contains several new German preparations unknown to this reviewer. Illustrations are sparingly used. Print and paper are very good. References to literature as well as bibliography have been completely omitted. On the whole, this book can be recommended as a reliable adviser on most of the problems arising in the daily practice of internal medicine and a sufficiently detailed text for medical students, who know German. As far as treatment is concerned, the author's attitude is rather conservative.

Surgery of the Anus, Anal Canal and Rectum –By R. S. R. Hughes, M.D., M.S., F.R.C.S., F.R.A.C.S., with a foreword by C. Naunton Morgan, M.S., F.R.C.S., 1957. Board bound, 10×7 inches, 304 pages. E. & S. Livingstone Ltd., Edinburgh and London. Price 50 sh. net., regd. postage 1s. 10d.

The anus, anal canal and the rectum quite often have their own peculiar pathological conditions, and surgery of these is gradually coming to acquire a speciality by its own right. The author very correctly says that to become a specialist the practitioner must pass through three phases: must have the inspiration to take an interest in the speciality, must receive special training in that branch and finally must have full facilities to practice his art in developing his skill. The author has himself diligently passed through these phases. The subject matter is systematically and ably considered in a total of sixteen chapters, with 276 figures to illustrate the text. A historical appendix at the end of the book makes interesting reading. As very aptly noted in the foreword, the book is up to date, concise, full of practical facts and free from verbosity.

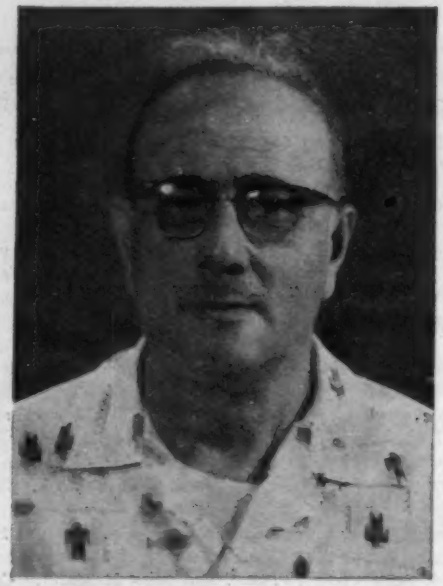
G. R. Medical College Magazine; Summer Number, Vol. VI, No. 2, July 1957; Gwalior, India.

This magazine contains a major part in English and a smaller section in Hindi. The articles have variety, written as they are by students as well as their teachers. The five photographs (opp. p. 41) captioned "spot diagnosis" are interesting and an innovation in a medical college magazine. The collections of small, witty, and often instructive, sentences scattered throughout the text to "fill up the blanks" are interesting and seem to have been culled from a large number of sources.

OBITUARY

Dr. Hem Chandra Baruah

Dr. H. C. Baruah was born in 1890 in a respectable family of Nagsankar in Tezpur subdivision, Assam. After passing the I.A. examination from the Cotton College with a competitive scholarship in 1912, he joined the Calcutta Medical College from where he graduated in 1918.



Dr. H. C. Barua

After serving for a few months as Assistant Surgeon at Gauhati, he joined the Indian Medical Service and was in Mesopotamia till the end of 1923. On his reversion, he served as an Assistant Surgeon in several places, and was a teacher in the Berry White Medical School, Dibrugarh for a long time. He left for U.K. for training in Mental Diseases. On his return, he worked as the Superintendent of the Tezpur Mental Hospital. After serving as a Civil Surgeon in Sadiya, Naga Hills, Nowgong, Durrung, Shillong etc. he was appointed as the First Principal of the Assam Medical College, Dibrugarh in 1947 and retired in February 1949 but rejoined in 1953 and served in that capacity till the end of 1955. As a Principal he made a remarkable contribution towards the growth of the infant institution. Dr. Baruah was elected the President of the Assam State Branch at the Jorhat Session and was a very keenly interested member of the Association. He was always amiable in disposition, had always a young mind and was highly popular among all sections of the people. Besides, being all-round in sports, he was a prolific writer in Assamese literature.

He died at his residence at Gauhati on 26-1-58 after a prolonged illness. He was 68.

SUPPLEMENT
Journal of the Indian Medical Association

VOL. 30, No. 9 CALCUTTA MAY 1, 1958

XVII BIHAR STATE MEDICAL CONFERENCE, 1957, JHUMRI-TELAIYA

The 17th Bihar State Medical Conference was held at Jhumri-Telaiya (Kodarma) on the 23rd and 24th November, 1957, in the spacious grounds of the local High School. Ninetyone delegates from all over the State attended the conference. The inauguration of the conference was to have been done by Shri Bir Chand Patel, the Health Minister, but due to his unavoidable absence Dr. Dukhan Ram, the Vice-Chancellor of the Bihar University, did the same.

After unfurling the national flag, Shri R. G. Agarwala, Member, Rajya Sabha, opened the Scientific Exhibition. The Scientific Session of the conference was presided over by Dr. S. M. Ghosal. Dr. J. N. Sen of Hazaribagh inaugurated the scientific session.

Dr. G. P. Tripathy, the Chairman of the Reception Committee, accorded a hearty welcome to the guests and delegates. In his speech, he described the various advantages and disadvantages of the local people. He said that the health of the masses was poor, education backward and all social, economic and business activities were in the hands of persons from outside the district.

DR. G. P. TRIPATHY, THE CHAIRMAN OF THE RECEPTION COMMITTEE

The President of the Conference, Dr. S. M. Nawab in his address said :

"The health problem is very intimately linked up, particularly in India, with the development of industrial resources. Our poverty, under-nourishment, unemployment, absence of adequate housing facilities, social insecurity, ignorance and superstition are all the direct outcome of our poor economic resources.

It is easy to criticise the Government and clamour for an all-embracing health policy. We have yet to admit that a really adequate health service has to await our economic emancipation. It is, however, at least our duty as doctors and citizens to keep our health objectives clearly in view and play our part which has of necessity to be a leading part in the future health plan of our nation.

While our country is far behind the western countries and now even behind China, in all aspects of health programme, we in Bihar are below even the Indian standard. The per capita expense on medical treatment is Rs. 135/- in U.K., it is about Rs. 2/4/- in Bengal while it is only about Re. 1/- in Bihar. While we have one bed in the State managed hospitals for about seven thousand persons, in India the average is one bed for about two thousand persons. We have not only therefore to advance further with the rest of India but to make up for this legacy of the past. It is obvious that it will need several five-year plans and a great increase in our economic resources to make our health services even passably adequate. Our objective is to suggest a planned and well integrated development of our health schemes. When faced with paucity of resources, personnel and equipment, an intelligent application of available resources to our urgent requirements, keeping in view the imperative need for rapid expansion of our services, is extremely important. To do otherwise would be wasteful and would result in a lopsided and unbalanced development.

MEDICAL EDUCATION

Being a teacher in a medical college, medical education is naturally foremost in my mind. During the last ten years our colleges have become overcrowded with great increase in the number of students admitted to our institutions. Our teaching facilities were meagre and have become greatly strained. Lack of available space in lecture theatres, dissecting rooms, laboratories and even wards handicap our teaching programme at every step. Since our students of today would be specialists, teachers, medical administrators and doctors of tomorrow my humble submission is that at least in the teaching hospitals every effort be made to create ideal conditions of treatment for patients. We cannot unteach our students tomorrow what we teach them by our own example today. Our grant for medicine and diet is less than Rs. 12/- a week per patient. In U. K. it is over Rs. 200/- a week including the salary paid to the medical personnel. This is hardly adequate for efficient modern treatment. Our laboratory and x'ray service should be well equipped and staffed and should be easily available every hour of the day and night. In the surgi-

cal wards disaster looms overhead if the sterilising service is not well staffed with properly trained hands. Ancillary engineering personnel to look after and service the elaborate equipment, mechanical and electrical, required for modern surgical procedures is imperative.

Our wards are over-crowded with floor cases and there is little space between beds even for the medical and nursing personnel to move about and examine and treat patients and it is often difficult to accommodate a large group of students for clinical teaching. Each ward or group of wards at least in teaching hospitals should have some rooms set apart for clinical demonstration, tutorial classes and seminars. There should be conference rooms for the medical personnel, well equipped wards, laboratories, record rooms and offices for registration, for preparation of statistics and for study of follow-up records.

In Darbhanga Medical College the wards are mostly large barracks without a single auxiliary room making it difficult to carry on any therapeutic procedure by the residents and nurses and there are hardly any rooms to be used for clinical demonstrations and tutorial classes.

Dramatic changes are being suggested in the teaching programme for the medical students. While I fully agree with the proposal for a one-year internship we should be careful in switching over to newer methods of teaching anatomy with surgery and physiology with medicine. Instead of integrating anatomy with surgery we may be teaching neither sound anatomy nor safe surgery. This is all the more true when we teach students in large numbers in ill-equipped institutions.

For undergraduates and even for postgraduates full use should be made of modern audio-visual aids for teaching specially to large audiences.

To attract suitable personnel and to keep them engaged in teaching and research a Class I medical teacher's cadre is essential. For those keen on research a handsome research allowance in lieu of private practice should be sanctioned, otherwise the lure of private practice will take the best talent away from teaching and research.

In India it is not in my opinion private practice which hinders research. My predecessor Dr. Ram remarked a year ago at Muzafferpore that if it was so the fruits of real research work should be flowing out of science, arts, agriculture and engineering colleges. The fact is that space, equipment and funds and a suitable environment is lacking in most teaching hospitals in India. For research in surgery for instance animal experiment is essential. This needs an animal house, animal operation theatre with complete anaesthetic and surgical equipment and post-operative rooms.

There are institutions in other countries where accommodation is provided for experimental surgery on dogs. Here limbs are divided and sutured back, delicate experimental research carried out on surgery of the heart, lungs and the great vessels, on revival of the dying etc. Results obtained from such research work have already been found useful for human beings. The example of the dog in Sputnik II is familiar now to all of us.

Clerical Assistance

I need hardly emphasise on the great need of clerical assistance in clinical work. In Darbhanga Medical College there are no clerks in any of the clinical departments. Clerical assistance is essential for proper record keeping for assessment of result of therapeutic procedure, for follow-up of patients after their discharge and perhaps most important of all for clinical research.

Emphasis on postgraduate teaching as the backbone of undergraduate teaching is essential. All possible facilities should be provided for postgraduate students: hostel accommodation, laboratory facilities and clinical teaching.

Dr. Ukil has correctly emphasised that every medical college should have, apart from the undergraduate course,

A. Refresher courses for general practitioners.
B. Diploma for specialist courses.
C. Courses for research workers.

Our Medical Services

There have been very notable achievements in preventive medicine during the First Five-Year Plan period. Death rate has been reduced by 4½ lacs per year. I. M. R. reduced from 111·3 to 63·16. Plague has been eradicated. Cholera and smallpox death rate reduced from 1·3 per 1,000 and 0·3 per 1,000 to 0·34 per 1,000 and 0·016 per 1,000 respectively. Hospital beds have increased from 4,256 to 5,702 and doctors from 4,813 to 5,600. But our requirements are still colossal. If we are to provide one doctor per 5,000 of the population we should have 8,000 doctors and three times the number of hospital beds we have at present.

Rural Medical Relief

N. E. S. Blocks—The health centres are rendering useful service. If the medical service personnel employed there are provided with comfortable living quarters and sanctioned a handsome village allowance they may prefer to stay in the village and work in the centres instead of trying to run away to towns. Being the seniormost officers in the N.E.S. Blocks they must be accorded the respect to which they are rightly entitled.

To meet the health needs of our people we must have a proportion of at least one doctor per 1,000 of the population and not two doctors per health centre as at present. The health centre should of course be properly equipped and should be well integrated with subdivisional and district hospitals.

It is a strange paradox that with such a great dearth of doctors in the rural areas we find that many doctors are unemployed or partly employed. We should employ all available medical personnel in villages through (i) the health centre to which the local practitioners should be invited, (ii) village dispensaries subsidised by the State, (iii) A rural health insurance scheme. The proposal of Dr. Chatterjee, Secretary, Union Ministry of Health, for such a health insurance scheme issued in January this year is very commendable. He suggests a contribution of Rs. 2/- per family from the villagers and outlines provision of a dispensary in each village with a doctor ; a nurse-*cum*-midwife and outpatient and domiciliary treatment.

It is necessary that we must progressively increase our medical manpower and go on finding increasing avenues of employment for them. The Provincial Service Cadre will not absorb many more than a further couple of hundred doctors. Where then would our thousands of young graduates be employed till such time as our State is able to have a widespread network of medical service extending to every village. We must remember that unlike graduates in arts and sciences no other avenue of employment is open to our graduates. A rural health insurance scheme mainly contributory and partly subsidised by the State is the only answer to this very vital problem of present-day unemployment amongst doctors and also of providing medical relief to 85 per cent of our population residing in the villages.

The District Board dispensaries are also rendering valuable service and it is my duty to point out to you, that the question of emoluments of the District Board doctors which has often amounted only to Rs. 70/- per month deserves our serious notice. We should make every effort to move the Government to take urgent action in this matter and secure for them a living wage.

The General Practitioner

This group consists of the main agents for providing medical relief specially in outlying villages. With the establishment of N.E.S. Blocks this group has been hard hit and has in many places been practically thrown out of employment. As we shall need many times more the number of doctors we have at present it is imperative

for us to have a scheme for their employment. I have already suggested their employment (1) in Health centres either whole-time or part-time, (2) in subsidised rural dispensaries, (3) in a rural health insurance service. To this may be added their employment as school medical officers and as part-time workers in subdivisional and district hospitals. The Indian Medical Association has offered a scheme of School Health Service which is economic and can be given a trial. There are also schemes of rural Health Insurance and Mutual Benefit Society of the Union Ministry of Health to render health service to the population. These societies spread over all of our towns would provide the much needed medical relief to the urban population, would relieve congestion from the Government hospitals and would absorb a large number of our young graduates. This contributory scheme may in the beginning only provide consultation and domiciliary treatment. But it would be possible later to supplement it with specialist and laboratory services.

Refresher Courses

Medical science is fast advancing and new methods of diagnosis and treatment are being discovered every day. To keep abreast of these developments Refresher Courses for the general practitioner are essential. They should be planned by the Association, and wherever possible in consultation with medical colleges and Government hospitals. Gone are the days when the general practitioner could be sure of comfortable livelihood by treating malaria, kala-azar, cholera and dysentery. He has to know much more, do much more and take on such greater responsibilities if he has to exist.

Subdivisional and District Hospitals

They are in need of upgrading and provision of adequate laboratory, x-ray and specialist service.

At this stage I feel it my duty to emphasise that unlike other services all of us in the Provincial Medical Service are in Class II service. There is the strongest possible case for a Class I Medical Service which may be divided into three cadres—Teaching, Specialist, Administrative.

Our Pharmaceutical Industry

During the last world war seventy per cent of our drugs were manufactured in India of which we now manufacture only about 15 per cent. Our industry is in the main a bottling and tableting industry and spurious drugs are being widely manufactured and sold.

Of the 1,700 pharmaceutical factories only about 75 perhaps are functioning satisfactorily. There is no efficient agency yet to test, assess, control purity and therapeutic efficacy of drugs. As a result India now imports Rs. 10-15 crore worth of drugs and raw materials.

The main obstacle in the manufacture of our drugs lies in the lack of a coal-tar industry manufacturing basic salts and coal-tar intermediates. Considering the vast sum spent on foreign drugs we would do well to decide upon the establishment of such an industry in our State. In the meantime rigid licensing and inspection of drugs should be introduced and manufacture of spurious drugs should be declared as a cognisable offence.

Manufacture of Surgical Appliances

It is also a very important item. The foreign made operation tables, operation theatre lights and sterilisers cost thousands of rupees. Our hospitals either do without them or spend lavishly on those costly items which soon break down and in the absence of an Indian industry cannot be quickly and easily repaired. I am confident that manufacture of simple operation tables, lights and sterilisers and general surgical instruments offers no great difficulty. We must fully support the Indian firms manufacturing these essential items and I would suggest establishment of Government factories for manufacture of standardised patterns of these instruments and appliances which are so much in demand in Government institutions.

Dr. S. M. Nawab, the President of the Conference

Indigenous Medicine

It has been rightly said that it is strange to accept that the last word on medicine was said several thousands of years ago. Ayurvedic, Unani and Homoeopathy have no preventive medicine and no surgery. And yet we are spending so lavishly on the expansion of these systems of medicine.

I fully agree with the necessity of research on indigenous drugs but as there is just one science of physics and chemistry, of agriculture and engineering there cannot be two systems or two sciences of therapeutics.

I have dwelt at length on a wide variety of problems and have offered quite a number of suggestions. The crux of the matter is that unless 25 per cent of the State and 10 per cent of the Central revenue is allocated on health our progress would be very slow. We are at present spending only about 4 per cent of our revenue on medical relief. While allocation of larger funds is very desirable my humble submission is that if it is not feasible to allocate more funds, our health plan should at least not suffer from austerity cuts which are being applied at present. Our poorly equipped hospitals can hardly bear the strain of any further drastic cuts when their resources are already so limited. If one has to choose between a more widespread service and reasonably efficient service one would every time prefer the latter alternative. Instead therefore of extending our medical services it would, for the present, be much better to run whatever services we have reasonably well. I would even suggest a cut on salary of the senior members of the medical services, rather than a cut on current expenses of the hospitals if Government decides finally on applying austerity measures to the Health Services.

THE I.M.A. AND OUR FUTURE PROGRAMME FOR THE CURRENT YEAR

1. Our membership is at present only 1,854 out of a total of about 6,000 doctors in our State. To be really representative we should make every effort to include most if not all the doctors of the State in our Association. The strength of our Association lies in the strength of our membership. To be effective in the Councils of our Government and to secure our due share we must therefore make every effort to enlarge our membership.

2. We must lay due emphasis on Refresher Course lectures for the general practitioners and make it a regular feature with the co-operation of the two medical colleges. It would also be quite possible to have similar Refresher Courses in some of the district hospitals.

3. A thorough scrutiny of the list of doctors in this State is essential. Complete survey of the doctors practising in our State should be made by our branches to arrive at the correct figure of our medical manpower. This survey should also include their working condition, their economic position and their willingness to profit by further opportunities for training as for instance in Refresher Courses organised by the Association.

4. Constitution of a Resolution Implementing body. In the past we have been passing resolutions and I find that most of us have even forgotten the resolutions not to speak of the results they have achieved. We must therefore constitute a body to examine all the past resolutions, maintain constant touch with the Government and inform the Association about the views of the Government on these resolutions and the action taken by the Government from time to time on them. Such a body would also be extremely useful to the Government as it would be in closest contact both with the Government and the entire medical profession.

5. To continue with greater vigour our activities in the Bihar Health Week and reach out specially to the remoter places with our educational campaign on health problem and use it as a forum of mass education.

6. We must maintain the closest possible contact with our local branches, encourage regional meetings and make efforts to establish further local branches. The members of the Council and Working Committee should visit as many local branches as possible to study local problems and to help the local organisations and their members in their day-to-day difficulties.

The Association in spite of our financial and organisational difficulties is making steady progress. But we have to remember that no organisation has a life of its own. Its vitality depends on what life we, its members, put into it. Burdened as we all are with our day-to day problems, we will face these very problems far better, standing together shoulder to shoulder as active and dynamic members of this Association. Let us then return from this Conference determined to discharge this duty we owe not only to our professional brethren but most of all to ourselves. With our past Presidents for my guidance and with a large number of selfless and devoted workers to draw inspiration from, I look forward in the current year to a more rapid and vigorous growth of our Association."

The following resolutions were passed at the conference :

1. This conference views with concern the choice of the Service system in the Employees State Insurance Corporation (Medical Benefits Scheme) as it has been instituted in our State, and desires the State Branch and the Central Office of the I.M.A. to take up this issue with the State and Central Governments, respectively with a view to try to substitute the existing service by the Panel System.

2. All Medical Institutions under the control of Local Bodies be immediately provincialised and all medical officers be absorbed into State Medical or Public Health Services.

3. Resolved that Controller of Narcotic Drugs, Government of India, should be approached to relax the restriction on the import of pethidine.

4. This conference of the Bihar State Branch of I.M.A. views with great concern the circular letter No. 11 P2-2-25/57-31457/H dated 23-10-57 from the Deputy Secretary to the Government of Bihar, Health Department, to the Accountant General, Bihar (through the Finance Department) putting the services of the district board provincialised dispensaries as on deputation from D. B. and not absorbing them in the Government Service as has been the declared policy of the Government.

This conference urges the Provincial Government to adhere to their old policy and to absorb the services of the Medical officer at an early date.

5. Resolved that the Government of Bihar be moved to see that the Medical Officers in Government Service should not be placed under the subordination of executives when there are Civil Surgeons as the Head of the Medical Administration of the district.

6. Resolved that the restrictions on the import of life saving medicines like antibiotics and other drugs which are not produced at present in India be removed and immediate steps be taken to establish basic chemical and surgical industries as the long term solution of the problem.

7. Resolved that S. B. be moved to appoint a Library Committee with the Librarian as Convener and one or more representatives of Patna Branch of I.M.A. with a view to suitably organise the Headquarters Library at an early date into a good shape.

8. This conference requests the State Government to consider the question of increasing Stipendiary Allowances to Housemen of Patna Medical College Hospital and Darbhanga Medical College Hospital.

9. Resolved that the good offices of I.M.A., State Branch, be utilised for the speedy end of the strike at the Patna Medical College Hospital.

This conference appreciates the good work already done in this connection by the retiring President and the present President.

10. Resolved that the authorities of Bihar and Patna Universities together with the State Government be moved to construct Hostels for post-graduate students in Medical Colleges in Darbhanga and Patna.

11. Resolved that in view of existing shortage of medical manpower in the Second Five-Year Plan age should not be a bar to the employment of duly qualified personnel.

12. This conference urges the Government to enforce the legal limitation to the sale of scientific medicines without authorised prescription.

13. Resolved that the Minister, L.S.G. and authorities concerned be moved to provide for a seat for a representative of the I.M.A. of the Local Branch both in Municipal Board and District Board.

14. Resolved that the Superintendents, Patna Medical College Hospital and Darbhanga Medical College Hospital, be requested to move the authorities concerned to put one of the nominees of the local Branch, I.M.A., as Hospital visitor every year.

15. Resolved that the Principals, D.M.C. and Patna Medical College, be requested to move the authorities concerned to put one representative of the local branch, I.M.A. as the member of the Governing Bodies of the colleges concerned.

Resolved also that the relevant authorities be approached to ensure representation of I.M.A. in Community Project Committees, Block Development Committees, Jharia Mines Board of Health, Coal Mines Welfare Organisations.

16. Resolved that the District Magistrate and the authorities concerned be moved to put one of the nominees of the local I.M.A. as a Jail visitor every year.

17. This conference views with great concern and deplores the present pick and choose policy of the Life Insurance Corporation of India in having a few doctors in its approved list of Medical examiners and dispensing

with the services of those Medical examiners who were regularly examining life insurance cases for a number of years before the Life Insurance Corporation came into existence.

18. Resolved that in view of the declared objectives of socio-economic pattern of the country and to render more efficient medical relief to the people of our State including the rural areas, this Association requests the Government to seriously consider the proposal of instituting the National Health Scheme absorbing all doctors of the State, including the private practitioners of modern scientific medicine as early as possible.

19. Resolved that to improve the standard of health services and to create incentives for better type specialists' work, Government be requested to consider creation of specialists cadres with special grades of pay to doctors on the basis of postgraduate qualification or specialised experience.

20. This conference views with great concern, the strike situation existing at the Patna Medical College Hospital and requests the Housemen to call off the strike forthwith.

21. This conference urges the State Government to take suitable steps to achieve the targets in the health constituents of the Second Five-Year Plan and to keep positive health programme as one of the priorities, assuring the Government of the utmost co-operation of the I.M.A. and the profession for the fulfilment of the declared objectives of the Plan.

22. Resolved that a benevolent sub-committee be reconstituted for the benefit of the members of the I.M.A. and their dependants.

23. This conference requests the Bihar Branch of I.M.A. to move the Central Government to direct the Mica Welfare Hospital to include workers in Mica Factories along with coal mine workers in respect of indoor and outdoor treatment.

BRANCH NOTES

ALIGARH BRANCH—A meeting of the branch was held on 28-2-58. Eight members were present. The members condoled the death of Maulana Abul Kalam Azad, the Education Minister of the Government of India.

ANDUL BRANCH—A meeting was held on 2-3-58. Fourteen members were present. Dr. B. P. Tribedi and Dr. S. K. Dutt, the President and the Secretary of the Bengal Provincial Branch attended the meeting. Dr. Tribedi gave a talk on Medical Profession and our Organisation.

BEGUSARAI BRANCH—An extra-ordinary meeting of the branch was held on 28-1-58 to condole the death of Dr. S. C. Chakraborty, an ex-president of the branch. Dr. K. D. Mullick presided. Eight members were present.

BERHAMPORE (GANJAM) BRANCH—A meeting of the branch was held on 18-3-58. Sixteen members were present. The members urged on the local municipality to take immediate steps towards supplying filtered and properly chlorinated water to the local area.

BIHAR STATE BRANCH—The annual council meeting was held on 23-11-57. Thirtyfour members were present. The members condoled the death of Dr. G. B. Muthu (Ranchi), Dr. B. C. Das (Ranchi), Dr. S. P. Roy (Deoghar), Dr. N. Sen (Katihar), Dr. P. Sinha (Sindri), Dr. (Major) S. K. Mollik and Dr. Mrs. Bina Chaudhury (Dhanbad). The annual report and the statement of accounts were passed, after some discussion. The budget estimate for 1957-58 was discussed and passed. Office-bearers for 1957-58 were elected with Dr. (Major) H. C. Mallik as hony. state secretary and Dr. A. K. Sen, Dr. B. Prasad, Dr. G. P. Tripathy, and Dr. K. P. Agarwal as hony. joint secretaries. Members to different committees were elected. The annual report of the state branch shows that 4 new branches were formed and the membership increased from 1783 to 1848 during the year. There were held 2 state council meetings, 4 ordinary meetings and 1 emergent meeting. An amount of Rs. 550/- was collected for the Building Fund, Central Office. The finance showed slight deterioration during the year.

The first meeting of the Working Committee of the State Branch for 1957-58 was held on 12-1-58. Dr. S. M. Nawab presided. Twentyfive doctors were present. The state secretary's report for the quarter ending in December 1957 was presented and accepted with modifications. Accounts for the same quarter were also passed. Expenditure on items detailed in the budget were discussed. The plan of work for the current year was drawn up. It was decided to organise and popularise refresher course lecture series at Patna, Darbhanga, Jamshedpur and Dhanbad, in the current quarter of the year. Plan for the health week celebration was discussed. In a resolution the committee strongly disapproved of the recent policy of the State Government in re-appointing permanent officers of local bodies on temporary basis. The conference resolutions were discussed. The question of private practice by government employees was commented on and a committee had to be nominated by the president to discuss this question from all aspects.

BIJNOR BRANCH—At the District Conference Bijnor, Dr. Shivapuri in his address pointed out the inequities in the pay of the doctors in government service. He could not find any reason for having several scales of pay among the profession. He deprecated such differential treatment in the profession. He discussed the conditions of rural health and suggested that provisions be made for laboratories to improve diagnosis and treatment. He referred to the want of co-operation between the Government and the Association. He requested every member of the medical profession to enlist as member of the I.M.A. and also appealed to the members to donate to the Building Fund of the Central Office, I.M.A.

BOKARO BRANCH—The annual general meeting of the branch was held on 27-12-57. Fourteen members were present. Dr. S. N. Banerjee presided. The accounts and balance sheet for 1956-57 were passed. Dr. S. K. Das Gupta was elected president for 1957-58, Dr. C. L. Mazumdar, hony. secretary and Dr. J. M. Patitunda, vice-president, for the year 1957-58. The hony. secretary was requested to arrange at least 6 meetings in the year including clinical meetings.

CALCUTTA BRANCH—The 2nd meeting of the executive committee of the Calcutta branch was held on 14-1-58. Dr. H. K. Roy presided. Twentynine members were present. The proceedings of the meeting held on 10-12-57 were confirmed. The statement of accounts for December 1957 was accepted. Eight new members were admitted. Dr. Tribedi was elected a representative of the branch on the Advisory Committee on Anti-epidemic campaign set up by the Calcutta Corporation.

DELHI BRANCH—The report of the branch for the month of January 1958 shows that on 21-1-58, a lecture was given on Treatment of Sciatica by Prof. Dr. Sophas Von Rosen. Two meetings were held during the year. Office-bearers for 1957-58 were elected with the following: president—Dr. P. C. Dhanda; vice-president—Dr. H. S. Dhupia; hony. secretary—Dr. D. R. Khurana and joint secretary—Dr. M. C. Gupta. Three new members were enlisted during the month and the executive committee met once.

DOOARS BRANCH—The annual general meeting of the branch was held on 2-3-58. Office-bearers were elected with Dr. N. G. Ghatak as president, Dr. N. C. Bagchi as hony. secretary, Dr. D. K. Bagchi and Dr. S. N. Das as joint secretaries. A case note on Conservative Treatment of Acute Appendicitis was read by Dr. J. C. Chakravarty.

FAIZABAD BRANCH—A special meeting of the branch was held on 23-2-58 to condole the death of Moulana Abul Kalam Azad, the education minister of the government of India. Dr. S. S. Misra, Civil Surgeon, Faizabad presided.

FEROZEPUR BRANCH—A meeting of the branch was held on 8-2-58 with Dr. R. D. Gulati in the chair.

Dr. R. J. Garest of Christian Memorial Hospital, Ludhiana spoke on Tuberculosis of Bones and Joints and its Treatment.

GIRIDIH BRANCH—An emergent meeting of the branch was held on 1-2-58 with Dr. A. B. Das Gupta in the chair. The members condoled the death of Dr. P. N. Mukherjee, one of the vice-presidents of the branch.

HARDOI BRANCH—In a meeting held on 12-3-58, the members condoled the death of Dr. Hargovind Sahai.

JAGATDAL BRANCH—A meeting of the branch was held on 2-3-58 with Dr. P. N. Ghose in the chair. Dr. B. Manna, of the Chest Department, Medical College spoke about the modern treatment of Pulmonary Tuberculosis. Fifteen members were present.

JAHANABAD BRANCH—The annual general meeting of the branch was held on 15-9-57. Dr. R. Saran presided. Office-bearers for 1957-58 were elected with Dr. R. Saran as president, Dr. N. G. Sinha as vice-president and Dr. Md. Quais as secretary.

A meeting of the branch was held on 16-2-58. Dr. R. Saran presided. Three new members were enrolled. It was decided to issue an appeal that no doctor should charge professional consultation fee from any qualified doctor and members of his family. The Government was requested to frame effective rules to check quackery. Dr. Saran demonstrated a case of Hunter's hernia and Dr. P. Dayal a case of cataract.

JAMUI BRANCH—Under the auspices of the branch, Health Week was inaugurated on 13-3-58 by Sri S. P. Sinha, Chairman, Bihar Legislative Council. During the week, baby shows, lectures on family planning, mass inoculation, school health examination etc. were held.

JAMTARA BRANCH—Under the auspices of the branch, Health Week was inaugurated on 10-3-58 by Sri Banerjee, the retired Headmaster of the local High School. Baby shows were arranged and public utility lectures were given during the week.

KANPUR BRANCH—The annual general meeting of the branch was held on 23-2-58. Office-bearers for 1957-58 were elected with Dr. B. L. Rohatgi as president, Dr. R. Rohatgi and Dr. Pritam Das as vice-presidents, Dr. R. S. Saxena as hony. secretary and Dr. Navinchandra as hony. joint secretary.

A meeting of the branch was held on 10-3-58 to condole the death of Dr. Hargovind Sahai, ex-professor of Medicine and Emeritus Professor, K. G. Medical College, Lucknow.

KHAMGAON BRANCH—In the clinical meetings of the branch, Dr. V. R. Sane spoke on the Differential Diagnosis of Typhus and Typhoid. Dr. J. V. Barve spoke on Cardiac Syndrome in Amoebiasis, and Dr. M. G. Saroji spoke on Coronary Disease of the Heart. An annual dinner was arranged on 9-2-58.

NAGPUR BRANCH—The annual general body meeting of the branch was held on 28-2-58. Office-bearers for 1957-58 were elected with Dr. D. G. Mokadam as president, Dr. Mrs. S. Balraj as vice-president, Dr. P. S. Dabir and Dr. L. R. Lakhkar as hony. secretaries.

NALGONDA BRANCH—The general body meeting of the branch was held on 16-3-58. Dr. Krishnamurty presided. Dr. K. Rangacharyulu, the president of the Andhra Pradesh Branch in a short speech requested the members to revitalise the organisation and see that the members derived the fullest benefit from the association. Dr. M. Vasudeva Rao held a lively discussion with the members on the future activities of the branch.

ORISSA STATE BRANCH—The annual meeting of the branch was held on 22-2-58. Office-bearers for 1957-58 were elected with Dr. S. N. Acharya as president, Dr. I. Santra as vice-president and Dr. G. B. Mohanty as hony. secretary.

PORBANDAR BRANCH—A meeting of the branch was held on 2-2-58 with Dr. H. H. Chavda in the chair. Six doctors were present. Dr. D. L. Desai was elected as a representative of the branch to the Hospital Advisory Committee.

PURNEA BRANCH—The 8th Purnea District Medical Conference was held on 2-3-58 at Purnea. Dr. S. K. G. Dastidar of Patna presided. One hundred and nine doctors were present. Dr. T. N. Bariar, president of the branch as the chairman of the Reception Committee welcomed the guests and delegates.

RANCHI BRANCH—An emergent meeting of the branch was held on 16-1-57 to condole the death of Dr. B. C. Das, a prominent member of the association.

SAHIBGANJ BRANCH—Under the auspices of the branch, the Bihar State Health Week was inaugurated on 10-3-58 by Dr. D. N. Roy, ex-director of the School of Tropical Medicine, Calcutta. Dr. Roy spoke on The Role of Nutrition in building a nation. On 11-3-58, a baby show was arranged and trophies were given to the winners of different age groups. On 12-3-58 a competition for the little Sahibganj-Sree, 1958 was held. Sri Nepal Chandra Saha won the best prize.

A meeting of the branch was held on 15-3-58. Doctors from the different towns of the sub-division attended the meeting. This was followed by the health week meeting where Dr. J. Nath spoke on Birth Control.

SANGLI BRANCH—A meeting of the branch was held on 2-3-58. Dr. D. V. Desai the president of the branch gave a talk on Radiology. Twentythree members were present.

SEONI BRANCH—A clinical meeting of the branch was held on 15-3-58 with Dr. Mackay in the chair. Dr. Banerjee, the Civil Surgeon, spoke on Convulsions in Children.

SILIGURI BRANCH—The annual general meeting of the branch was held on 4-2-58. The annual report of the branch and the accounts for 1956-57 were read and adopted. Office-bearers for 1957-58 were elected with Dr. G. C. Ghosh as president, Dr. K. N. Chatterjee and Dr. A. K. Ghosh as vice-presidents, Dr. S. K. Ghosh as hony. secretary and Dr. H. Gupta as scientific secretary.

SITAPUR BRANCH—A clinical meeting of the branch was held on 31-1-58 with Dr. N. B. Misra in the chair. Cases of (1) Cancer Lung and (2) of Rheumatic Heart were demonstrated by Dr. Gupta. Dr. J. M. Pahwa read a paper on Arsenical Amaurosis with 2 case reports treated by BAL.

A clinical meeting was held on 26-2-58. Dr. Partap Bahadur presided. Dr. Radonovic, WHO specialist gave a talk on Problems of Trachoma in India. Dr. J. M. Pahwa showed a typical case of Laurence-Moon-Biedel Syndrome. Dr. Gupta showed a case of Dextrocardia with Dextroversion of Viscera like Liver etc.

SUPAUL BRANCH—The branch celebrated the Health Week. On 12-3-58, cleanliness of the drains, mass inoculation, vaccination and antityphoid inoculation were carried out. On 10-3-58 the Health Week was inaugurated by Dr. Rajendra Prasad, Civil Surgeon, Saharsa and lectures on public health and hygiene were given by Dr. R. Prasad, Dr. S. S. Prasad and Dr. S. K. Mukherji.

TARAKESWAR BRANCH—A socio-medical conference was held on 9-3-58 at the Tarakeswar Hospital. Some members of the locality and 40 members of the branch attended it. The president and the secretary of the branch explained how medical men can be utilised in social services in health centres, school health and other health schemes. The meeting desired that the Thana Health Centre be upgraded to a 20-50 bed hospital.

TITAGARH BRANCH—The annual general meeting of the branch was held on 13-1-58 with Dr. G. M. Chatterjee in the chair. The annual report for 1956-57 and the annual accounts were adopted. Twelve general meetings and one clinical meeting were held during the year 1956-57 and membership increased from 7 to 25. Office-bearers for 1957-58 were elected with Dr. G. Chatterjee as president, Dr. C. N. Chowdhury as vice-president, and Dr. A. Chatterjee as hony. secretary.

U. P. STATE BRANCH—The working committee of the branch met on 9-3-58 to condole the death of Dr. Hargovind Sahai, retired professor of medicine and emeritus professor of K. G. Medical College, Lucknow.

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Vitamin A, U.S.P.	5,000 I.U.
Vitamin D, B.P.	500 I.U.
Vitamin C, B.P.	50.0 mg.
Folic Acid U.S.P.	0.5 mg.

CTF

Excess vitamins have been added to compensate for any possible loss on storage.

Packing:
Bottles of 30 and 100 capsules

Tins of 500 capsules.

A Product of:
TEDDINGTON CHEMICAL FACTORY PRIVATE LTD.
Surén Road, Andheri, Bombay

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WT. 3188

EYE
Lack of A causes xerophthalmia and keratinisation of the cornea, night-blindness. Lack of ascorbic acid causes a tendency to cataract.

TEETH
Lack of A causes defective formation of dentine and enamel. Lack of ascorbic acid causes swollen and bleeding gums, gingivitis, decayed and loose teeth. Lack of D causes dental caries and imperfect calcification.

SKIN
Lack of A causes a dry and scaly skin. Lack of ascorbic acid causes subcutaneous haemorrhages with blue markings.

RESPIRATORY TRACT
Lack of A causes keratinisation of mucosa, pneumonia in infants. Lack of D causes lowered resistance to infection.

CIRCULATORY SYSTEM
Lack of thiamine causes heart failure, oedema of legs, anaemias. Lack of ascorbic acid causes general tendency to bleeding with increase in time of blood coagulation. Lack of D causes lowered calcium-phosphorus ratio.

NERVOUS SYSTEM
Lack of thiamine causes polyneuritis, nervous disorders. Lack of D causes general nervous disturbances, convulsions in rickets.

GASTRO-INTESTINAL SYSTEM
Lack of thiamine causes anorexia and nausea, poor appetite with loss of intestinal tone.

GENITO-URINARY SYSTEM
Lack of A causes atrophy of the testes, renal calculi, hardening of the uterine mucosa, vaginitis. Lack of E causes sterility in male and female.

MUSCLES
Lack of thiamine causes loss of muscle tone, soreness and cramps. Lack of D causes tetany in infants, lowered blood calcium.

BONES AND JOINTS
Lack of thiamine causes degeneration of the bone marrow. Lack of ascorbic acid causes a tendency to fragility and easy fracture. Lack of D causes poor calcification with imperfect bone-formation, rickets.

LEGS
Lack of thiamine causes heaviness and tenderness of calf muscles.

HUMAN REQUIREMENTS

The diagram above indicates human requirements of vitamins and points clearly to the disabilities that might result in the event of vitamin-starvation. Wyamin Fortified Multivitamin capsules have been especially formulated to provide adequate vitamin nourishment in a one-a-day dosage form.

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WYAMIN* Fortified

Multi-vitamin Capsules

Bottles of 25, 50 and 300

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J. 48

ENTEROMYCETIN

CHLORAMPHENICOL U.S.P.

SULFA

SYRUP and TABLET

Chloramphenicol palmitate and two sulfa drugs (sulfadiazine and Phthalyl Sulfathiazole) contained in this product widens the range of activity, particularly in infections of Gastro-intestinal and Genitourinary tract.

Packing: Enteromycetin Sulfa Tablets in tamper proof bottles of 10.

Enteromycetin Sulfa Syrup in tamper proof bottles of 50 gm.

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Printed by Sri Tarani Kanta Basu at Sri Gouranga Press Private Ltd., 5, Chintamani Das Lane, Calcutta-9 and published by him on behalf of the Indian Medical Association from 23, Samavaya Mansions, Corporation Place, Calcutta-13.
Editor—Dr. P. K. Guha, M.B., M.R.C.S., (Eng.), D.O.M.S. (Lond.)

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Decreases blood sugar.
Defeats earlier oral anti-diabetic drugs.
Devoid of anti-bacterial action.

Tablet of Tolbutamide, 0.5 Gm.

Treatment should be instituted under the supervision of a physician and the following may serve as a preliminary guide for the dosage of DIABESULIN.

1st day 3 Gms. (6 Tabs.)
2nd day 2 Gms. (4 Tabs.)
3rd day 1.5 Gms. (3 Tabs.)

Thereafter daily dosage of 1 Gm., which can be given as a single dose after breakfast with water, should be adjusted as required to obtain optimal control.

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MINDPUB.10

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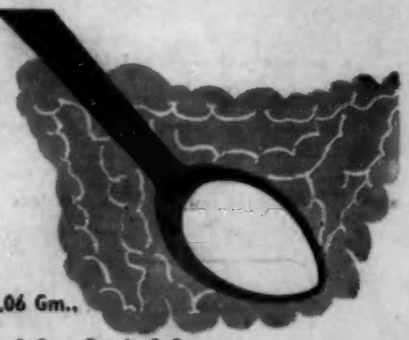
Diarrhœa
& Food Poisioning



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Chloro-pectidin

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